THE LURE AND LORE OF ARCHAEOLOGY -

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The Lure and Lore of Archaeology

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ETC.

SANS TACHE

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To

My Former Colleague

and

Constant Friend

DAVID MOORE ROBINSON

of

The Johns Hopkins University

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PREFACE

It would be impossible for the author to make separate acknowledgments of the many sources from which the material in this book has come.

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He would also pay a tribute by expressing his obligations to four of his former teachers, now deceased: Francis Willey Kelsey of the University of Michigan, Jesse Benedict Carter of Princeton, Director of the American School of Classical Studies in Rome, Christian Huelsen of the German Archaeological Institute in Rome, and Harry Langford Wilson of the Johns Hopkins University. He is also under the heaviest of obligations to many archaeological colleagues who, both at excavations in the field and in private conversations, have instructed and enlightened him, and whom he wishes particularly to thank for their help and courtesies: Sir John Marshall of India, Sir Arthur Evans of Cnossus, Professors John Garstang, Alan J. B. Wace, and Thomas Ashby, sometime Directors respectively of the British Schools of Archaeology at Jerusalem, Athens, and Rome, Chester C. MacCoun, Director of the American School at Jerusalem, Bert Hodge Hill, sometime Director of the American School at Athens, Comm. Roberto Paribeni, Director of Fine Arts in Italy, Professors A. Maiuri of Herculaneum and the Naples Museum, M. Della

Corte of Pompeii, and Guido Calza of Ostia, Gorham P. Stevens, Director of the American Academy in Rome, Professor Esther Boise Van Deman, his aunt, Carnegie Research Professor in the University of Michigan, resident in Rome, Professor Walton Brooks McDaniel of the University of Pennsylvania, Associate Curator Ambrose Lansing of the Department of Egyptian Art of The Metropolitan Museum of Art, Professor James A. Montgomery of the University of Pennsylvania, Chairman of the Managing Committee of the American Schools of Oriental Research, Dr. William H. Holmes of the Smithsonian Institution, Henry Field of the Field Museum in Chicago, Edgar L. Hewett, Director of the School of American Research at Santa Fe, and Professor David Moore Robinson, his colleague at Johns Hopkins for many years, to whom he has dedicated this book.

PART I

THE LURE OF ARCHAEOLOGY

ITS REASONABLENESS

It has always been axiomatic that both the Humanities and the Sciences have their roots firmly grounded in the past. The recurring successes of the present in all the sciences would not have been possible had not the researcher known the history and methods of the preceding work in his field. In fact, it is correct to say that without a comprehensive knowledge of what has already been done, no scientist has been able to progress effectively along the lines and beyond the attainments of his predecessors, much less to dare leave the well-marked path and strike out for the boundless realm of possibilities. To recall only the history of new schools of painting and sculpture will serve to elucidate that statement.

From ancient times till now, groups of sculptors and painters have thrown to the winds the *dicta* of established technique, types, and traditions, and in all cases thus far, such schools have degenerated from immediately noticeable oddities through mediocrity to a sadly earned oblivion. Those groups of artists who have earned an unquestioned right to the new path which they have hewed or blazed have been those who, well grounded in the lore of their calling, knew where and how far they might dare go.

Science, due for the most part to the more tangible results of its research, has perhaps felt less dependent upon its past than have the Humanities. The powers of thought, the intensities of emotion, the amount of uplift in literature, the strength, pull, and drive of art, do not lend themselves satisfactorily to laboratory experimentation. The more intangible we feel them to be the more real we know they are.

It is but one of the many subjects of the scientific Humanities with which this book will deal. It is Archaeology. Once the "handmaid" of philology, archaeology has long since reached the stature of a full-fledged science in its own right. It deals with the remains of civilizations of the past, it discovers and interprets the long since buried artifacts, utensils, records, and monuments of destroyed or forgotten civilizations. Its discoveries every day give us clues that enable us to follow the lines along which the knowledge, the science, the arts, and the crafts of ancient days have come down to us of modern times, and which help us to evaluate and to distinguish both the likenesses to and the differences between the lives, customs, and accomplishments of people of long ago and of ourselves. How reasonable therefore becomes such a study!

Anything that adds to our knowledge, or even to our information, is well worth study. 1930 A.D. is a bimillenial year of note. On October the fifteenth, two thousand years earlier, the Roman epic poet Vergil was born. We know that our children read the Aeneid of Vergil in their fourth year of High School Latin. We wonder if the children of the Romans themselves studied Vergil. When one sees on the house-walls along the street, as one may at Pompeii, examples of the first lines of that author which had been scratched there by boys on their way to school, one realizes that the Aeneid was a school study two thousand years ago. Mosaics that date several hundred years A.D., lately found in excavations in Roman Africa, which portray Vergil as the counterpart for Rome of what Homer was for Greece, afford additional information as to the standing of Vergil as a great poet. The very fact alone that poets like Homer and Vergil are still revered and studied after more than two thousand years is a startling thought.

Sometimes we speak in archaeological language without knowing it. We see in the papers, or we ourselves say, that some person has been *ostracized* by society. The Greek word for an oyster shell, or for a piece of broken terra cotta pot that had a shape much like that of such a shell, was *ostrakon*. At stated times the ancient Athenians could vote whether some man in the state should be exiled on the ground of being a dangerous citizen. If a specified number of votes was cast, the man whose name appeared on the most ballots was exiled. The names were written or scratched on *ostraka* which were cast as ballots. The victim was said therefore to have been ostracized, a word which itself explains that particular brand of exile.

Statements made as facts necessitate proof unless the person making them is recognized as a scientific authority. When statements by authorities are made as opinions, and when such opinions differ very widely, the general reader or student is left in a quandary. A discussion went on for many years over the date of the casting of the famous seated bronze boxer in an Italian museum. Opinions differed as much as three or four hundred years. Some time ago the statue was moved and cleaned. A capital letter A was found stamped under one of the big toes. The shape of the letter made it possible for scientific epigraphy to date the statue to within a few years of the time it was cast, and even to authenticate the country, Greece, where the casting was done.

ITS UNIVERSALITY

If, seventy five or a hundred years ago, we had been asked when the world and man were created, most of us would have guessed that it could not have been so very many thousands of years ago, and some of us, relying on what we believed to be an authoritative statement of a certain English Bishop Ussher, would have said that the earth was created in the year 4004 B.C., and man, shortly thereafter.

Geology has proved that the earth was created many millions of years ago; archaeology and anthropology have shown that man was living on the earth at least as long ago as 300,000 years. The Greeks and Romans of more than two millenia ago believed in a very long antiquity before themselves. We might have guessed at more of what we now know. If great civilizations throve in various parts of the world three or four thousand years ago, it might have been excogitated that many other thousands of years would have been necessary during which a people could have collected or grown into numbers and potency enough to have reared a civilization.

The fact that so many places in different continents have been claimed as the original "cradle of mankind" lends color to a traditional belief in the universality of human habitations. The many localities, one even in the Western Hemisphere, in which the so-called "Ten Lost Tribes of Israel" were supposed to have been found, proves, if it shows nothing else, the wide-spread interest in the movements of earlier peoples. Travelers, and books of travels, have described the existing—and never lost to sight—remains of the civilizations of Rome, Greece, and Egypt. It has, however, been quite unintelligible and almost unbelievable to many people that ancient civilizations could have disappeared entirely. It has been the good fortune of Archaeology to discover many of those lost and forgotten civilizations and to show how they had been covered up.

It is now no longer difficult for a visitor to Central America to understand how the luxuriant jungle has grown around and over the deserted cities of the Maya. It is not wholly unexpected when the archaeologists find earlier monuments beneath a site where existing ruins are still above ground. But it has not yet ceased to excite wonder when excavators remove the huts of some modern town, as they did those of the Turkish Hissarlik south of the Dardanelles, and find nine previous cities built one on top of the other, of which the sixth one from the bottom was the city of ancient Troy, the site of the ten-year war conducted by the Greeks in the eleventh century B.C. to win the fair Helen back to her Greek husband Menelaus. It has about it something of the marvelous when the tomb of a Mes-Kalam-dug or of a Tutankhamen is found; when an excavator finds a riverine deposit in Mesopotamia which is clearly that left by the great Flood of the Biblical narrative; when an unknown and unexpected cemetery in north Italy is found to contain hundreds of unbroken Greek vases the paintings on which open up vast possibilities of new information bearing on the mythology of the ancient Greeks.

There is a widespread belief that the destructions of ancient cities was a wilful or vengeful practice. We read of towns that were purposely destroyed and their sites sown with salt. But some of these very cities have been excavated and found to be full of valuable remains of a historic character, and usually beneath the destroyed stratum are other strata of yet earlier settlements. History tells us that the Romans in 146 B.C. destroyed utterly the towns of Corinth in Greece and Carthage in Africa, but the excavations being carried on at the present time at both places show that the destruction was rather a demolition. Wars and fires have destroyed much, but earthquakes, volcanic eruptions, floods and sand storms, have destroyed more. In many cases, however, as for example at Herculaneum and Pompeii, and at Ostia in Italy, and at Lepcis Magna and Sabratha in northern Africa, the destruction of those towns, from the point of view of the then inhabitants, has been the means of preserving them for modern scientific examination.

Two types of destruction, however, have wrought complete annihilation of the objects attacked. One type is the result of religious and national fanaticism; the other is the result of ignorance. Saracens, Arabs, Turks, and Moors must bear a large share of international blame because of their fanatical zeal in destroying everything they could that symbolized other religions than their own. The ignorant Turkish and Arab peasants, because of their jealousy and cupidity, destroyed many thousands of inscriptions engraved in stone. Epigraphists take as their contribution to science, the reading, translation, and interpretation of writings engraved in or stamped upon hard substances such as stone and metal. An inscription, let us say, is turned up in Asia Minor or Syria. Unless the excavator or epigraphist makes a copy immediately, or makes from the letters a squeeze (*i.e.*, an impression on damp blotting paper), the next morning he is likely to find that the stone has been smashed to pieces. Sometimes the destruction is carried out by the ignorant natives because of their dislike of foreigners, but more often it is because they believe that inside the stone there is gold or something of great value, or because they think the unknown writing over which the foreigner pores so eagerly contains directions whereby some great treasure may be discovered.

It would not be quite fair to a more recent antiquity to laud the present protagonists on the archaeological stage unless the semblance at least of a background be set up. Various foreign Archaeological Institutes had already begun work in a small way when the world was galvanized into higher speed by the discoveries through which that ardent German, Schliemann, brought again into the limelight that famous city to which Helen went, and then golden Mycenae, the royal seat of her brother-in-law, who won fame by commanding the Greeks in the Trojan war. Next, that persistent Englishman Arthur Evans, in discovering Cnossus in Crete, in resurrecting the Minoan civilization with its island-centred thalassocracy, and in bringing to light the marvels of Cretan metal work, brought Daedalus (and Icarus, worse thought) to the aeronautical world, Adriadne to the lovelorn, Minos to the legal minded, and Cretan art and culture to every tea and card table. Those were truly archaeological *tours-de-force*. Carter and Carnarvon, after spending more than a decade in poking up the Valley of the Kings, finally reaped a rare reward, and Tutankhamen, although a small and weak link in the Pharaonic chain, leaped straight from the tomb to the front page of the Press of the world. Tutankhamen's coffin of gold, his ivory and lapis lazuli walking sticks, his astoundingly and flamboyantly rich funeral trappings, even his royal viscera protected by the outspread arms of four charmingly nude goddesses, made the tongues of the world wag almost as never before.

Archaeological competition sprang with tremendous acceleration and success to arms: that is, to the pick, shovel, trowel, and dusting brush. Morris of the Carnegie Institution imagined that somewhere under the Temple of the Warriors in Yucatan there ought to be a corner stone filled with dedicatory offerings. He found it. It was not exactly a corner stone, for probably there were no Masons or Odd Fellows to lay it, but there was a big jar in which had been deposited a placque of turquoise that had come from New Mexico. The turquoise had been cut by Maya artists and made into a mosaic of over 3500 pieces with a beautiful design, one of the finest pieces of aboriginal art thus far found in the western hemisphere. Bradfield of the School of American Research at Santa Fe collected whole and broken pottery from the Mimbres Valley in New Mexico and established a direct and unbroken line of ceramic ware of the Pueblo Indians back beyond the beginning of the Christian era. Robinson of Johns Hopkins found up near Saloniki the pre-Alexandrian city of Olynthus and dug out material wherewith a new chapter in Greek history is being written. Maiuri, of Herculaneum fame, discovered an intact necropolis east of Naples from which the work in gold and other metals found in the first five tombs, gives certainty that the Oscan-Greek culture before the period of Roman domination will soon be added to the growing fund of our ancient inheritance.

Sir John Marshall has laid bare a city in the Indus Valley that covered thirteen acres, and disclosed forty feet of vertical superimposition. The wealth of finds has enabled him to establish certain commercial intercourse with the early civilizations in the valleys of the Nile, Euphrates, and Hoang-ho, and to set up a claim to ancient Indian history as far back as 3500 B.C. The British Museum expedition at Thebes in Egypt found 299 scarabs which were deposited as a dedicatory gift on the day the temple of Queen Hatshepsut was founded at Deir el Bahri, and in so doing has given to the world the most beautiful lapidary art of the XVIII Dynasty (c. 1500 B.C.). Crowfoot of the Palestine Exploration Fund in digging near the Pool of Siloam has found a hitherto unknown gate in the western wall of the ancient City of David. Ur of the Chaldees has become more sensational every year of late. Woolley of the Joint Expedition of the British Museum and the Museum of the University of Pennsylvania has made, by the discovery of a solid gold wig (certainly, however, a ceremonial headdress), Mes-kalam-dug rise to royal stature. In the discovery of the tomb of Queen Shub-ad, Woolley has found the evidence of human sacrifice on the grand scale in the sixty soldiers and courtiers who still in death yet stand where in life they should have stood in attendance upon their royal master and mistress. The find of a bull's head of gold with hair of lapis lazuli, overlooked by the plunderers in ancient days, is a vivid index of the artistic marvels that were buried with the regal pair. The Joint Expedition to Mesopotamia of the Field Museum and Oxford University, however, carried off the palm for the archaeological campaign of 1929. In the lowest stratum of the temple mound at Kish, not far from Babylon, the discovery of marvelous objects in gold, gems, and ceramics, not only puts Mesopotamia alongside Egypt, Mycenae and Cnossus in the artistic excellence of their work, but also more important is the proven fact that these objects just found antedate those of Ur of the Chaldees and of the First Egyptian Dynasty.

What more needs to be added to demonstrate the universality, and with that the intensely attaching interest, of archaeology?

ITS CHARM

The charm of archaeology is in the feeling that comes, as it were, in waves of satisfaction, with successive impressions: first, the thrill of reading about or of making a discovery, then the appreciation of an accomplishment that belongs to anything handled, preserved, interpreted, and published in an accurate and worthy manner, and lastly, the realization of historical, artistic, and esthetic acquisition.

It is admitted that most of what we think and do and are comes out of the past. But until archaeology began to uncover and explain the ruins of ancient cities, began to bring to light first of discovery and then of scientific illumination the marbled magnificence, the architectural splendor, the painted story, of the glories of the classic past, the tangible proofs were lacking. Now to the undisputed value of the ancient past, scientific archaeology has added the lively interest and excavation has contributed the thrill.

Not long ago between Egypt and Mesopotamia and Greece there stretched an unbridged space of unaccountable time. But as the Tells began to prove a teeming Arabia, as the Hittites came slowly to view as a great people in Asia Minor, as Minoan Crete under the archaeological hand of Arthur Evans took on the form of the great thalassocracy of a missing millenium, the historians remade and the world reread its ancient history with that excitement which new and startling facts produce.

Julius Caesar becomes much more than a military historian who built a bridge across the Rhine with words newer and longer than the piles he drove, and he becomes much less the arch-enemy of the American second-year Latin student, when one handles some of the silver coins he issued to pay off his troops after the Civil War, or when one stands over the mound in front of the temple of Divus Iulius in the Roman Forum and knows he is standing where they burned to ashes the body of that "greatest Roman of them all."

The Alban Hills, the Latian Towns, the Bay of Naples, will add to Vergil's great poem a realism which nothing but the topographical side of archaeology can give. The person who has read or traced with finger the graven line of the inscription in the National Museum in Rome: CARMEN CONPOSUIT Q. HORATIUS FLACCUS will probably never again be able to sit in *ex cathedra* composure while commenting upon Horace's *Carmen Saeculare*. No longer will one who has seen a potsherd with the word Themistocles scratched upon it have any doubt as to the effectiveness of an Athenian referendum; the soaring roof of the Pennsylvania Station in New York amazes but will not overwhelm the one who knows it is but modeled after one room of a great Roman bath.

Greek law became more real when suddenly there came to view the Gortyna code. Diverting the water of a millrace in Crete, to repair a dam, disclosed the splendidly graven letters of the oldest laws of Greece. There is no such wealth of historical fact in any movie film as is seen on the spiral bands of the Trajan and Antonine columns, or on the reverse sides of thousands of Greek and Roman coins, or on painted Greek vases or in Roman historical relief sculptures.

The discovery of a palace full of statues dating about 550–450 B.C. has lately been made on the island of Cyprus. Its particular importance lies in the fact that no such find has ever been made before in Greek lands. This palace, a Cypriote parallel to the famous palace of Minos in Crete, came to light one morning as a Swedish expedition was digging on the side of a high rocky hill. Statues and heads of statues both of stone and terra cotta filled a stratum at the foot of a staircase. Digging up the stairs a monumental gate came into sight. Trial trenches soon gave enough data to show that the palace covered an area of over 10,000 square yards. It has a central court, it is built in terraces, and the series of rooms were three stories or perhaps more in height. Many of the rooms are very large, and the palace has verandas and porches, with fine stairways, on different levels.

The treasures found thus far are quite unparalleled in Greek archaeology. There is a splendid bronze group found near the palace on the temple site of two lions attacking a bull; especially fine is a bronze cow which seems to be much like the famous bronze done by the Greek sculptor Myron. But the most interesting thing about the objects is their likeness to some of the fine pieces of Greek work of the best period which have been already localized at various artistic or cult centers. A limestone statue of a girl is startlingly like the stone maidens found some years ago on the Acropolis at Athens. Another limestone statuette of a girl shows two ancient Greek fashions; one a turban, which was already known, but the other is a collar turned up at the neck like a coat collar of today, which is quite unique. The original of a seated terra cotta statuette, dating about 525 B.C., might have sat for one of Rosetti's portraits; a male figure of limestone wears a tightly drawn robe that is quite medieval in appearance; an archaic terra cotta statue of a full breasted female wears a hat exactly like a modern *cloche*; a limestone head has a smile just like that of Mona Lisa; a fine terra cotta gives us a Madonna and child better than anything we have before the fifteenth century A.D. If the rest of the excavation turns out as it has begun, the Swedish archaeologists will step into the limelight as the discoverers of a suspected but hitherto unproven great period of classical sculpture and architecture in Cyprus.

The discovery in 1928 of the graves of Celtic chieftains in which were found bronze wine-jars that dated in the fifth century B.C. has excited much interest not only in France but also in the world that deals with the history of origins. The triangular area between Metz, Mannheim, and Coblentz had been already claimed as the most likely original home of the Celts. These new finds, known as the Lorraine Bronzes, have tended to establish the claim. These bronze urns, or wine-jars, are of the shape known as the Greek *stamnos*. The beaded decorations on lip, foot, and handles, the animal forms, the various inlaid patterns, all show the imported Greek ideas adapted and transformed by the Celtic genius. It is no wonder that the British Museum wants to acquire these bronzes. It has already a gallery of good Iron Age things, and also such examples of the art of the early Britons as the Witham and Battersea shields, for the early dates. These Celtic bronzes would provide the proofs of the beginnings of the style of decoration which reached its high point about 750 to 900 A.D. in the Tara brooch, the Ardagh Chalice, and the Book of Kells, all Irish (*i.e.* Celtic) masterpieces.

A recent excavation near the famous Dipylon (double-gate) gate of Athens in Greece made by the German Archaeological Institute at Athens was financed by an American, Mr. Gustav Oberlaender of Reading, Pennsylvania. Beneath the foundations of the first Pompeion, so-called because in it were stored the accessories for the great religious processions (*pompe*), which was attached to the city wall built by Themistocles, were found slab-graves of the late Mycenean epoch dating about 1000 B.C. The remains were discovered of a potter's kiln with many broken lamp stands bearing Christian palm-crosses, which with other pieces of pottery helped to assure a post-Christian date. An iron helmet of Hellenistic type gave authenticity to the catastrophe of 267 B.C. Perhaps the most charming bit found was a band of gold with a decorative frieze of animals done in repoussé. No more important excavation, from a historical point of view, has been carried through in Athens for several decades.

The new régime which has had the work at Pompeii in charge during the last five years or more has adopted wholeheartedly the latest methods of excavation and reconstruction which carries both forward at the same time. Maiuri and Della Corte have been fortunate in having the newly discovered Street of Abundance for their laboratory. By removing carefully—to note one instance—the upper layer of Vesuvian ashes the excavators came upon two narrow roofs, the tiles of which indicated both the presence and position of a peristyle below. Soon the peristyle was cleared and its columns were found with holes in them about half way up. At once rods were inserted in the holes and now one can see in the reconstruction how the ancient Pompeians hung curtains from their rods to shade the peristyle from the sunlight in the open court.

Along this newly opened Pompeian street were many houses of two stories which had shops on the bottom floor, as is still true in Italian towns today. The Street of Abundance seems to have been the Main Street of the commercial quarter of the ancient city. One may go now into the shop where the fullers dyed cloth; one may see an ancient oil-press, reconstructed in the main with its original parts of stone, iron, and wood, set up in another shop; one may go back into the gardens of a number of these houses and see growing in the ancient beds the very flowers and plants which used to grow in them before the eruption of 79 A.D. covered them. One may ask how we know these newly planted shrubs and flowers are the same as those which grew there nearly 2000 years ago. The answer is found in the wall paintings in these and other houses on which are depicted from the contemporaneous gardens the very flowers of that day. One may even go into several gardens and turn on an ancient spigot, exactly like ours of today, and hear the water come running through the ancient lead pipes, and see it spurt forth from the ancient fountains exactly as it did nearly 2000 years ago.

On the so-called Triumphal Way near Rome were recently discovered some Octavian tombs. On the walls of one of them is painted a Hermes with a caduceus, and some children who are playing in a flower garden around a pillar that supports a statue of Hecate. At the left of the Hermes a Cupid is depicted carrying off the soul of a little girl, which is a miniature of the little girl herself, in a chariot drawn by two doves. In another tomb was found the figure of a peacock—the bird that represented immortality in ancient times—in a niche shaped like a sea-shell. The ceilings and vaulting of all the tombs are decorated with beautiful designs in stucco. When the entire repertoire of these tomb decorations has been interpreted, both ancient art and mythology will be much the richer.

The successful war against Turkey which closed in 1911 brought after it the cession to Italy of the Cyrenaica and part of Tripolitania in north Africa. It is almost impossible for a modern country to appreciate what the recovery of that part of the north African littoral means to Italy. It is not so much an addition to colonial possessions, but is rather the resumption, as it were, after more than a thousand years, of a long lost part of the Roman Empire, the nearest and most conspicuous heir of which is the Kingdom of Italy. It is true that the present Kingdom of Italy dates its era as beginning on the 20th of September, 1870, as the *Via Venti Settembre* in Rome commemorates, but Italy, as Italy, has an unbroken traditional continuity that goes back to some unfixed date B.C.

North Africa was part of the Roman Empire, and was washed by what the Romans called *Mare Nostrum.* Such early worthies as the emperor Septimius Severus, and the churchmen Augustine and Athanasius, came from north Africa. Comm. Roberto Paribeni, whose splendid services as Director of the National Museum in Rome gained him a well-deserved promotion to the directorship *delle Belle Arti*, in a recent brochure by calling the archaeological researches in north Africa *la conquista morale*, has struck the note exactly which is attuned to the Italian ear.

After the close of the Italo-Turkish war, the Italian government soon authorized excavation in the newly won territory. Even before that action was official, an accidental discovery gave a sentimental impulse toward the acceleration of the plans to resurrect the Roman past. The bones and the weapons of a Roman legionary soldier were the first treasure-trove from the north African shore. In 1912 some soldiers brought to light at Ain-Zara the magnificent mosaic pavement of an ancient Roman house, although the real object of the first work was to free from its unsavory surroundings the arch of Marcus Aurelius at Oea. This arch had been erected by a Roman citizen of that city, one Gaius Calpurnius Celsus, and dedicated in 163 A.D. by an African pro-consul. It was a four-arched gate astride the junction of two roads, Main Street, known to the Romans as the *decumanus maximus*, and Main Street Junior (*cardo*), which crossed at right angles at the municipal center, or Forum, and divided the city into four quarters. The architectonic ornamentation of all four faces of this arch is rich, and predominatingly in figured relief. On the two sides facing east and west, along Main Street, between free-standing Corinthian columns, are niches for statues; on the north and south faces are pilasters decorated with acanthus, groups in high-relief of barbarian prisoners, and the chariots of Apollo and Minerva being drawn heavenward by griffins. One of the statues recovered was that of the emperor's colleague Lucius Verus.

The cities of Oea, Sabratha, and Lepcis Magna, three great Phoenician emporia before Roman days, became the three largest and most important cities in Roman Tripolitania. Until 1923 Sabratha was a name known only through a *single* inscription, although over 200,000 Roman inscriptions have been found thus far and published. Apuleius of Madaura had noticed in the tumbled heap of ruins, more than half covered by the sand, an elliptical construction which in passing he identified as an amphitheatre. That amphitheatre is now cleared. Its arena measures 191 x 142 feet, being almost the size of the amphitheatre at El Djem in French Tunisia, and two-thirds as large as the Colosseum in Rome. Two colossal marble busts were discovered during the excavation, one of Jupiter and one of Concordia, both with inscribed bases.

Most important of the three newly recovered cities in Tripolitania, however, is Lepcis Magna. It boasts a somewhat unique fame. It was the birthplace of a man who later became emperor of Rome, Septimius Severus. He was a soldier of fortune for years, but when he attained the highest post Rome had to offer, he did not forget or neglect his native town. He visited it and decorated it both with higher political rights and with better public buildings. If, however, we call Severus the first great citizen of Lepcis Magna, we must do honor to the Modern Italian, S. E. Count Volpi, who has so successfully managed the inception of the work, and to the superintendent of excavations, Renato Bartoccini, whose scientific knowledge and experience have been the greatest assets in uncovering the ancient emporium.

One enters Lepcis Magna nowadays through the ancient portal, a triumphal gate, as is shown by the fifty square yards of sculptured relief, now pieced together in great part from broken fragments. In this great arch-picture in stone we may now recognize the emperor presiding at a sacrifice, battle scenes with the barbarians, and a triumphal procession, in which march the emperor with his wife Julia Domna and their children, the magistrates of the city, and the generals of his army.

One of the streets, after passing through the arch, leads to the great city Baths. In these Baths the Italians have uncovered a structure which is throwing light on the uses and construction of other Baths, in Rome and elsewhere, which have not been so well preserved. The basins of several of the pools, for example, are still lined with great slabs of polished marble. Ten of the wonderful columns of black granite still stand *in situ*, and some of the statues that adorned the many niches in the walls are still there, where they have been standing for nearly 1500 years.

To excavate a city in which already over forty statues have been found is in itself a triumph. Almost all the statues are fine copies of Greek or Roman originals, and they constitute the best lot ever found in a Roman site, Cyrene alone excepted. Among them the most worthy of note are a replica of the Borghese Mars, a fine Apollo Citharoedus (with the lyre) on which remain many traces of the original paint, a very good Marsyas, an excellent replica of the Diadumenus of Polyclitus, a Mercury and baby Bacchus, an Amphitrite, three statues of Aesculapius, the god of healing, a Venus, an Isis, an Antinous, the favorite courtier of the emperor Hadrian, and several portrait statues of noble ladies of Lepcis. A splendid array indeed!

The circus and amphitheatre belonging to Lepcis are quite a distance from the Baths. They have fallen in to such an extent that excavation must necessarily be slow, because the proper place for a fallen architectural member must be decided upon before it is underdug. Both east and west of the centre of the city, factories and private houses are coming to light every day. Several small Baths have been identified, as have also a great number of mosaics in the floors which when published will add much to our knowledge of art. It is always possible too that some mosaic may be a copy of a famous Greek or Roman painting. Several already studied are in the nature of caricatures of the life of the people of Lepcis and thereabouts. From a beautiful villa east of Lepcis have come some good frescoes as well as mosaics, the colored stones of the latter being the best thus far discovered in Italian excavations. The scenes depict gladiatorial sports and games, animal hunts in the amphitheatre, various pieces of farm life, shepherds, and sheep, and the tramping out of grain with teams of horses. But better than the scenes is the fineness of the work. Myriads of tiny colored stones are so fitted that they give the proper colors to swallows, nightingales, lizards, and dozens of other small birds and animals that were native to that north African shore.

Is anything further needed to demonstrate the charm inherent in and issuing from the discoveries of the glories of the past?

ITS EXCITEMENT

The excitement that comes with a sudden awakening of spiritual or esthetic interest, the pleasurable shock that shakes the intellectual reservoir, is a never to be forgotten experience. The British archaeologist, D. G. Hogarth, the grandson of the famous painter, while yet a dilettante received exactly such a shock, one that shook him out of dilettantism into scientific archaeology. He was on his way to Macedonia. Suddenly from out of the fog the peak of a lofty mountain appeared. A deck-hand said, "Olympe!" Hogarth had seen the home of the ancient gods of Greece.

When Schliemann discovered Troy, he set in motion thrills of excitement which have never subsided. Every time the pick and spade of the archaeologists strike the fecund lap of ancient mother earth, the tremor that accompanies imminent discoveries gives pause to the now expectant world, and almost daily the news of the discoveries reverberates around the intellectual globe. When the Hermes of Praxiteles rose again from his long entombment in the débris of Olympia, and took his place on the waiting throne of sculptural art, the esthetic world thrilled with excitement. When Arthur Evans laid ancient Cretan Cnossus bare, Theseus and the Minotaur, Ariadne and the ball of labyrinthine yarn, the airplane factory of Daedalus and Icarus, the palace of Minos, were transformed from the mythological tales of our childhood into the no less exciting discovery that real history lay back of the traditions of ancient Hellas.

Our word "paper" comes from the word "papyrus," which we know was the name of a plant inside the stalk of which was a slightly gelatinous heart something like that of sugar cane. The early Egyptians were the first to make use of the pulp by splitting the stalk, laying the strips flat and overlapping at the edges, and pounding them thin; then overlaying these sheets thus made with other strips laid crosswise and pounding them all into sheets which when dried made the wonderful papyrus paper for which the Egyptians were so famous. The possession of paper made it possible for the Macedonian conquerors of Egypt to transcribe and collect the greatest library of ancient times at a town named after its founder, Alexandria.

The fame of that library incited the rulers of the city of Pergamum in Asia Minor to found another library to be just as great. A story that has crept down the ages ought, in justice to our modern ideas, to be true, but recent research seems to have replaced the older monopolistic tradition, which reeks with opportunities for modern parallels, with the plain unvarnished and unglossed truth. Pergamum applied to Egypt for shipments of papyrus, but the papyrus did not come. It was unavailable. The story of course gained credence that the jealousy of the authorities of the library at Alexandria over the thought of a rival library at Pergamum was the reason that the papyrus order was not filled. The truth seems to be that the supply of papyrus in Egypt was not enough in excess of Alexandrian needs to make it possible to send any quantity of it out of the country.

Pergamum, however, was not to be denied. It invented a paper of its own by preparing the skins of animals, particularly of sheep, in such a way that they could be cut into sheets, written upon, and then bound into books. "Parchment" is only slightly changed from "Pergament," and luckily for the later world, the writings on parchment have lasted better than papyrus, and the most and best of the recovered literature of the ancients has come down to us on manuscripts of parchment. To be sure, much of value has been found on papyrus, especially of recent years, discovered in the dry sands of Egypt, and much more will be found. The papyrus sheets were pasted together and rolled into *volumina*, whence our word "volume;" but the sheets of parchment were collected like the leaves of books into *codices*.

In the thirteenth verse of the second chapter of Revelation, referring to Pergamum, it is written: "I know thy works and where thou dwellest, even where *Satan's seat* is." That statement nonplussed commentators until archaeologists began to excavate at Pergamum. They laid bare the "seat of Satan." It was a temple of the ancient pagan gods, the altar of which had as its artistic adornment a sculptured battle between the gods and the giants. When the Germans excavated Pergamum from 1878 to 1886, they came upon this magnificent marble altar with its slabs of sculptured beauty. After getting out several of the slabs, the excitement became so intense that the excavators sat down and simply wept for joy. Soon, to their mingled horror and amusement, they found they were sitting upon Zeus, the greatest of the Olympian deities. The "seat of Satan," the Pergamene altar, is now one of the most prized possessions of the Asia Minor museum in Berlin.

After Schliemann discovered Troy, he was inevitably led to the attempt to locate Mycenae, the royal town of Agamemnon. Some miles north of the bay of Nauplia, in Greek Argolis on an isolated hill some 900 feet high he discovered in July of 1876 that famous town also. He found first a double ring of stone slabs eighty-seven feet in diameter. Twenty-three feet below the surface he came upon the first of five graves hewn in the rock. In it were face-masks, bracelets, rings, and pins of gold, daggers, and objects of ivory, silver, bronze, and alabaster. In another tomb were sixty swords and daggers. In yet another, in which the skeletons of women only were found, were six diadems, fifteen pendants, eleven golden coils for the neck, eight gold ornaments for the hair, ten grasshoppers of gold attached to golden chains, three beautiful intaglios, and over 700 ornaments which had been sewn on the dresses of the noble deceased ladies. Not only had Mycenae been found but an important historical question immediately arose. Homer, the epic poet, in describing the burial of the Greek heroes of the Trojan war had told how their bodies were cremated. But here were the skeletons of the nobility of that day, showing that their bodies had been buried. Racial burial customs change very slowly. It was clear therefore either that the Trojan war was many centuries antecedent to the time when Homer sang his minstrelsy, or that the heroes who had sailed from Greece belonged to another racial stock than that which inhabited Hellas in Homer's day. We now know which supposition is correct. The so-called "Greek" heroes of the Trojan war were not the Hellenes of our Greek history, but were the Mycenaean branch of the Mediterranean Minoans whose great civilization had reached its high point a thousand years earlier at Cnossus in Crete.

Perhaps the four pinnacles to which international excitement over the finds of archaeology has risen are: first, the discoveries of Troy, Mycenae, and Tiryns, and the proofs therewith of the historicity of the Trojan war; secondly and thirdly, unexpected discoveries of two forgotten civilizations, the Minoan in Crete and the Hittite in Asia Minor, or as it is now called, Anatolia; and fourthly, the discovery of the practically unrifled tomb of the last to be discovered Pharaoh of Egypt, Tutankhamen.

There had been found among the tomb paintings in Egypt, personages from the north and from the sea, who were dressed and armed differently from any other ancients known. When the originals of these painted people were found to have been the citizens of Crete, the greatest gap in history was filled. To the amazement of the world these Minoan Cretans are shown to have been a people whose empire was almost contemporaneous with those in Mesopotamia and Egypt. The excitement that has attended the discovery of their importance in art, architecture, and history, has been intense.

In the Bible we had been reading about people called the Hittites, supposedly one of the score of ubiquitous -ites who had been thorns in the flesh of the Israelites and Aramaeans. So when discovery after discovery in northern Syria and on up through Asia Minor began to make it clear that a fourth great empire had occupied that country at the same time that Egypt, Mesopotamia, and Crete were enjoying the heights of their power, the interest that was thereby aroused was little less intense than that which had accompanied the discovery of Minoan glory. If possible, the excitement was even intensified when at the ancient Hittite capital of Boghaz-keui in the valley of the Halys river there were found some years ago in the palace many thousand pieces of clay tablets on which in eight languages, but all in the cuneiform of Mesopotamia, were the stamped records that guaranteed Hittite power. Nor did excitement abate when a letter was found that had come from the young widow of Tutankhamen in which she asked the king of the Hittites to send down to Egypt one of his princely sons that she might marry him. It has been little short of marvelous that archaeology within a generation has discovered two great ancient and forgotten civilizations which in power and in glory are properly to be set alongside Mesopotamia and Egypt.

Excitement is a commodity, or incommodity, which is hard to estimate. The discovery, linked forever to the names of Howard Carter and Lord Carnarvon, of Tutankhamen seems to be considered the most exciting of all archaeological *tours-de-force*. That must be so because it happened only a few years ago, and because every month new and gorgeous things are being taken from the many boxes and chests, the opening of which has been deferred until the scientifically necessary work of conservation has treated the larger unprotected objects. The press of the world has exploited and the tongues of the world have wagged over the discovery of the tomb of that unimportant young nobleman who, by virtue of marriage with a Pharaoh's daughter, fell heir to a throne about to be upset by religious controversy, and whose few years of royal power were so beset with trouble. His usurping successor, who had been his Chief of Cavalry, and his beautiful young widow, buried Tutankhamen with all the splendor his rank demanded, filling his tomb with many of the finest pieces of art which came from the palace of the father-in-law, the great "Heretic," who had moved from the older Pharaonic capital, and built a new one at Amarna.

The small entrance to Tutankhamen's tomb was neglected, perhaps covered, and some two hundred years later was so entirely forgotten that the workmen who were cutting out the passage and chambers for the tomb of Ramses VI threw their debris down over the earlier tomb. The other Pharaohs have all been found during this past century. The American, Theodore Davis, hunted for years for Tutankhamen, but finally, mistakenly thinking he had found it, gave up his concession. Lord Carnarvon took it over, and he and Carter for many more years steadily kept up the hunt for the tomb, until Carnarvon also gave it up as a "bad job." Carter, however, kept on, and luck and perseverance had their reward. No such other treasure of art has ever thus far come from any single discovery.

There is no other extant letter from classical antiquity, with the possible exception of Pliny's letter from Bithynia to the emperor Trajan as to how he was to treat Christians who would not recant and worship the emperor's image, that has excited so much interest, and that has been so much read as the letters (Book VI, 16 and 20) which Pliny the Younger wrote to his friend the historian Tacitus, who had asked him for his impressions about the eruption of Vesuvius on August 24, 79 A.D. At the time of the eruption Pliny was eighteen years of age. His uncle Pliny the Elder, the naturalist, his mother and he were at their villa at Misenum, the northern point of the bow that forms the shore line of the Bay of Naples. Pliny the Elder was admiral of the Roman West Mediterranean Fleet which was beached in the harbor at Misenum. About four o'clock in the afternoon a vast black cloud appeared above and beyond Naples, the source of which was not determined by the people at Misenum until the next day. The Admiral ordered out a launch so that he could run over to Stabiae, now Castellamare, to assist some of his personal friends, if necessary. He asked his nephew to go along, but the young man was working at some literary composition, and, not realizing that anything of consequence was happening, declined the invitation. His description of the form of the cloud holds much interest because of the accidental proof it gives of the reason the ashes were so long in coming down on Pompeii and other places farther southwestward. It resembled, wrote Pliny, a great pine tree, with a trunk stretching to a tremendous height, which there extended itself out in branches. The elder Pliny soon saw that there might be need of more assistance and ordered a number of galleys launched. As he approached the shore below Herculaneum, cinders and pumice and fire-cracked stones began to fall into his launch. Then the sea ebbed violently and a great landslide from Vesuvius poured into the sea. It was doubtless part of this slide which overwhelmed Herculaneum. Some of the slide was débris, but most of it was a torrent of hot mud which welled up out of the crater or broke through some fissure above Herculaneum. In passing, it may be added that the elder Pliny, in his eagerness to be of service and in his own zeal to examine scientifically into the disaster, was overcome by the fumes, probably sulphuric, from the fallen ashes, and died within a few hours.

Every visitor to Naples spends at least one day at Pompeii. The steamship tours of the Mediterranean, when their usual stop is made at Naples, always take their passengers to see the old buried town, now three-fourths excavated, which Bulwer Lytton first in modern times made famous by his "Last Days of Pompeii." But none but a student gets to Herculaneum; and yet "Herculaneum and Pompeii" is a common phrase that runs as one word. Of course the reason is clear. There is more to see at Pompeii, at least thus far.

Herculaneum was discovered accidentally in the year 1719. The Austrian governor was having a well dug in his villa and the diggers struck the walls of a house instead of water. Whether that governor made any archaeological discoveries is not known. But it is known that the French rulers at Naples, Joseph Napoleon and Joachim Murat, did much quiet digging at Herculaneum during the years 1806–1815. The sales of their effects later brought to light many fine articles of bronze and other antiques which probably came from there. It is even possible that an interesting mosaic of Archimedes, now in private ownership in Germany, came from there. In 1828 the brilliantly hued wall painting of Argus and Io was found in a house which was given the name *Casa d'Argo.* The most important find from a literary point of view was that in 1750 of 5000 rolls of blackened papyri, which barely escaped being thrown away as charcoal. The writing was mostly on philosophy. But that find leads archaeologists to hope for more papyri as Professor Maiuri's excavation continues.

Ninety-nine out of a hundred who visit Pompeii talk about how Herculaneum was buried under 100 feet, and Pompeii under 20 to 30 feet of lava. That is because the books and encyclopedias got it wrong years ago, and those statements have been repeated again and again, and, as is so well known, a thing once said or written is hard to change. As a matter of fact those towns were not covered by lava at all. They were covered by mud and scoriae and ashes. When Vesuvius exploded that day in the year 79 A.D., the eruption which Pliny described so vividly in his letter to Tacitus must have been almost exactly like the eruption of 1822 of which we have a well known drawing. Smoke and ashes shot straight up into the air thousands of feet. There they were caught by the wind and blown southwestward. The ashes did not begin to fall for several hours and the fall was not deadly dangerous for several hours more. Along with the ashes, up came hot mud, a mixture of small stone *scoriae* and boiling water, but it was too heavy to rise far above the lip of the crater. It simply fell or flowed down the mountain side. Herculaneum lay at the foot of Vesuvius and this volcanic mud poured over it to a depth of from 70 to 100 feet. Then came the molten lava. It flowed down in a leisurely manner in streams 20 feet or so thick. If you can imagine a thick stream of hot molasses easing down a gully or an arroyo you will not have a bad idea of the progress of that Vesuvian flow of lava. At the last big eruption of Vesuvius in 1906 the writer walked backwards ahead of such a stream from Vesuvius for a quarter of a mile and had no trouble in keeping well ahead of it. If the volcanic mud had not already begun to cover Herculaneum some of the lava doubtless would have run through and over it, and in fact a little did trickle along here and there. What happened was what one would postulate with a moment's thought. The lava took off down every valley or gully it met. The town of Pompeii lay on a ridge; therefore, the lava ran along both sides of it, some of it down into the sea and some down the valley east of the town. So the lava story must be revised in the light of the facts. In one of his speeches Maiuri referred to this covering as *lava di fango*, lava of mud. When it solidified it became very hard; but it is not lava. It responds to the ax, pickax, saw, and drill.

The Archaeological Institute of America was founded in 1879, and its founders and the scientific archaeologists who were among its early members were looking about for a place in which to start an excavation. Eretria and other small sites in Greece did not seem to offer opportunity enough to engage all of America's new enthusiasm. Professor Charles Waldstein, who died not long ago as Sir Charles Walston, who was at the American School in Athens, conceived a really grandiose idea. It was to collect a large sum of money in the United States, secure a concession from the Italian government with which to excavate Herculaneum. He got promises of large sums in this country for that great enterprise and he found among Italian archaeologists and officials a hearty willingness to cooperate. But it would appear that he possessed a certain incompatibility with Italian temperament. The writer some twenty years ago in Rome read copies of two of the letters he had written to the Italian authorities complaining of the delay, and candor compels the statement that the letters were couched in quite undiplomatic phraseology. At all events, the plan fell through. The United States, its archaeologists, and its Archaeological Institute lost the greatest opportunity of a generation to engage upon what is destined soon to be one of the most fruitful and important of modern excavations, as it will turn out under the scientific direction of Amedeo Maiuri. The story of how America's hoped-for dig at Herculaneum failed of accomplishment needs to be mentioned, because there are scores both of our philanthropists and our scholars of the older generation who still wonder why Herculaneum was not excavated by us of America.

During the years 1907 through 1909 a Royal Commission considered plans for excavating Herculaneum, but it was not until Maiuri was appointed Director of the Excavations and Antiquities of Campania that things began to move. The Government was in hearty accord with his plan, but did not wish to dispossess the residents of the little town of Resina which covers part of ancient Herculaneum. The new excavation fortunately began where there was small need to demolish any houses of value. There is free soil enough at Herculaneum in sight for several years' work, to say nothing of the opportunity to dig out away from the city whenever a road is discovered. It will be true at Herculaneum as it has been at Pompeii that many tombs of great architectural and archaeological value will be found on both sides of every road. The find of the wonderful Boscoreale silver some years ago makes it quite likely also that Maiuri will discover several suburban villas full of wonderful things. Professor Maiuri is right, however, in declaiming against the demand for immediate results. The work he has undertaken entails much more difficulty, and it will demand much more time than the excavation at Pompeii. It is not too much to say, however, that the chance of finding things of value is much greater than at Pompeii, because Herculaneum was a richer town; it was three miles nearer to Vesuvius than was Pompeii, and therefore there was much less time for the inhabitants to carry away their smaller valuables. Furthermore, the inhabitants of Pompeii, nearly all of whom escaped with their lives, came back months later after the fallen ashes had cooled, and dug down and got out most of their smaller belongings. That was impossible at Herculaneum because it was buried five times as deep as was Pompeii.

To follow up Main Street walking along on those lava stones laid there more than two thousand years ago, not knowing what minute one will come upon some new and startling discovery, is even more a joy for the excavator than for the onlooker. Along Main Street every little way there is a cross street. There the superintendent stops and sends diggers out both ways. Sidewalks, brick faced constructional walls, reticulate-faced (*i.e.*, like a net) inside walls, architectural decoration, appear ahead of a wealth of small objects that are found all the time. The Italian government has lately been working especially hard to get as much as possible of Herculaneum uncovered that it may be open for the thousands of literary pilgrims who will visit Italy during 1930 and up to October 15, 1931, during, that is to say, the two thousandth anniversary period of the celebration in honor of the birth of the Roman epic poet Vergil, a celebration which in and for the United States is being sponsored by the American Classical League.

ITS RESULTS

The results which even thus far have been obtained by archaeological investigation, excavation, and publication are quite beyond computation. The least that can be said is that ancient history has been corrected, filled out or amplified, and filled in or revamped. All the branches of art: sculpture, architecture, painting, ceramics, numismatics, work in the metals, on seals and precious gems of all kinds, have gained new ideals, types, and techniques. Many wonderful mythological fancies which have come down to us have been given bases in understandable facts. Literature, philology, epigraphy, and paleography have been tremendously enriched. The forgotton civilizations of Crete and Hittite lands have been restored to the ancient world; the mysterious civilization of the Etruscans has been greatly clarified; the unknown Sumerians have been found deeply buried below the well known Babylonians; the Canaanites and earlier Mediterraneans are now discernible under the Palestinian stratum of the Israelites, and the Galilee skull has postulated inhabitants in Palestine back in a very remote antiquity; Sabratha and Lepcis Magna on the north African coast have risen from the sand to authenticate still further the extent and power of the colonial possessions of the Roman Empire; even the lost

Atlantis, first probably a traditionalized Crete, and then successively Sicily and one of the Cape Verde islands, as discovery compelled Atlantis to recede westward ahead of geographical certainty, has found a new convert, and will need to lie very deep and still to avoid discovery.

It seems to be admitted that the best of the things produced in the Golden Age of Pericles at Athens, that wonderful period after the unexpected victory over the Persians (comparable in a way with the Elizabethan Age after the defeat of the Spanish Armada) was the temple called the Parthenon. We know it offhand as one of the Seven Wonders of the Ancient World; we know it perhaps from the replica at Nashville, or from the model in the Metropolitan Museum in New York, or in an archaeological museum of any one of dozens of our universities. At all events, from about 438 B.C. down to the present time, it has ranked as the most perfect all-round building that has been built thus far. It had three different lots of sculptured figures: first, two mythological compositions, one in each gable end or pediment of the temple, cut in the round; secondly, two or three figures in fairly high relief in each of the metopes, ninety-two in all (fifteen in the Elgin collection in the British Museum), in the frieze round the outside of the temple; and thirdly, a continuous band, 524 feet in length (of which the British Museum has 249 feet), of figures in low relief constituting a procession that ran all the way round the cella or temple building proper, much like the band that runs round the Pension Building in Washington. Some of these sculptured figures were done by the great artist Phidias himself—which ones, we do not know—and most of them were done by his students after his designs.

They lasted there fairly well for something over two thousand years. In 1684, however, Venice declared war on the Sublime Porte, who then ruled Athens, and in 1687 captured Athens' seaport, the Piraeus. The Venetian Morosini planted several batteries near the Acropolis hill, and having been informed by a deserter that the Turks had stored powder in the Parthenon, a shell was dropped purposely into it, as some authorities say, or accidentally, as say others, with terrible results for the famed old Doric temple of Athena Parthenos.

Lord Elgin was British Ambassador at Constantinople in 1799. By 1801 the bad feeling which the Turks had for all Christians was concentrated on the French because of Napoleon's activities in Egypt. Because of British victories over the French, England became a favored nation, as it were, and Lord Elgin was given permission to visit the Acropolis and do about what he pleased. He shipped home, at his own expense, many fragments from the Parthenon. Elgin was recalled to England, but was arrested by the French on the way home. He arrived in England finally in 1806. From then until 1812 his collection was on public view. An offer from the Government of $150,000 would have been made, but Elgin said he would decline it if it were made. In 1815 he himself offered his collection to England on such terms as the House of Commons would make, after due inquiry into its value. There was a heated controversy over the matter, his actions and his methods in getting the marbles being severely criticized. He and his friends answered the criticisms successfully, it would seem, because the committee appointed to report on the matter found no reason to censure Lord Elgin. Among the members of that committee were

Flaxman, Sir Thomas Lawrence and Benjamin West. There was complete unanimity in the report on the transcendent artistic value of the sculptures. The purchase price recommended was $175,000, although Elgin turned in an itemized account of his expenditures amounting to $370,000.

It may be interesting to know that in 1811 while Elgin, although in England, was still having Parthenon marbles shipped to London, Lord Byron was in Athens writing his "Curse of Minerva" (not published, however, until 1828) against Elgin's spoliations. Two lines, softened considerably from Byron's original manuscript, will suffice:

> "Scapt from the ravage of the Turk and Goth,
> Thy country sends a spoiler worse than both."

It is quite generally acknowledged, however, that Elgin's understanding with Turkey was legal and honest, and it is also admitted that he rescued many splendid sculptured pieces from certain ruin, and saved many others from certain mutilation, possibly from entire destruction. The art world has lauded England both for saving the Elgin marbles and for having them well displayed in a place much more accessible to students and travelers alike than if they had been kept at Athens, even granting they would have been as well protected and displayed. The insecurity or instability of Balkan states in general has furnished an added reason for the *status quo* of the Elgin marbles.

Each of the sciences corrects the mistakes of the other. The growing knowledge of Greek epigraphy corrected an amusing error which might sooner or later have disturbed Biblical scholars. A beautifully painted Greek bowl had as its decoration a bearded personage in a sail boat. The boat was hung with bunches of luscious grapes. A name in Greek letters was painted on the design. Lucien Bonaparte, Prince de Canino, read that name as Ezekiel. His conclusion was that the personage in the boat was Noah, the discoverer of wine. Princely authority, however, in this instance at least, failed to maintain itself against epigraphical, mythological, and archaeological science. Instead of Ezekiel, the name turned out to be that of a famous Greek vase painter whose name was Exekias, and the personage sailing so nonchalantly through the dolphin-filled sea was not Noah, but the Greek deity Dionysus.

The best results from the finds of artistic and portable antiquities are that before long these find themselves concentrated in different museums, where for the future they will be, or ought to be, safe from dispersion or deterioration, and be reserved for the education of posterity. One such important collection seemingly was on the point of wide-spread dispersion, the wideness dependent of course upon financial invitation. It was the Campana collection. Pope Pius IX confiscated it, and when in 1857 it was sold, it went fortunately to great public museums. The Niobe relief, some 518 vases, and a number of fine bronzes were sold to Russia. Napoleon III purchased the balance for $850,000, and with what he bought founded the Museé Napoleon III. That was the collection which when incorporated with the Louvre in Paris made that museum for many years the best museum in the world. Among the objects in the collection were many jewels set in gold, hundreds of fine terra cottas and pieces of Etruscan glass, the magnificent Campana reliefs, over 300 ancient marbles, and over 3400 vases.

That archaeological collection excited other museums to gather unto themselves the fine pieces of classical antiquity with the result that today there are hundreds of museums in the civilized countries of the world that house collections in which both nation and people take, and properly, the utmost pride.

PART II

The History of Archaeology

THE HISTORY

No less applicable today, if one would refer it to the world of archaeology, is a famous phrase of centuries ago made by Galileo in his *eppure si muove*, 'nevertheless and notwithstanding, the world does move.' Twenty years ago it would not have been believable that the daily press and the illustrated magazines of the leading countries of the earth would be vying with each other to get a "beat" out of a man who had been dead for four thousand years. But so short a time ago as that is now a mere bagatelle.

Pithecanthropus erectus, the Piltdown, the Java, and the Heidelberg man, the Galilee Skull, Aurignacian, Mousterian, Magdalenian, Solutrian, and interglacial man and their artifacts, their wall paintings, their skulls and their jawbones, have become not only dinner but also contract-bridge table talk. We are growing accustomed to take up the morning paper and to find in a conspicuous place that more remains of ancient man—and nowadays that means nothing under fifteen thousand years ago—have come to light in Peru, or in Java, or in upper China, or out a few miles from Jerusalem.

Over sixty diluvial sites in Moravia in Czecho-Slovakia have been known these many years, the Macocha chasm with its four underground rivers and stalactite caverns being perhaps the most important. As long ago as 1571 there had been found near Predmost the bones of mammoths which for some 300 years, like the buffalo bones of the Kansas and Nebraska plains, had been hauled away for fertilizer. But the 2000 mammoth back-bones collected together within the last few years are only part of the skeletal remains of those and other thousands of the huge animals that filled the larder of Homo Predmostensis. This new, and as yet unplaced, member of prehistoric society was already an artist, an engraver and a carver, twenty thousand years ago. It must have taken some time and skill to cut over 2000 parallel wedge-shaped grooves in a mammoth rib, after it had first been rubbed smooth. A bear head, a human toy figure with three fingers only on one hand, a rude but well marked human face scraped on a mammoth femur, and numbers of statuettes of various kinds, show the variety of artistic objects.

The pendants, bead necklets of mammoth ivory or the bored teeth of bears, lions, foxes, and hyenas, and especially the double teeth for nose decoration offer some rather startling analogies to Papuan and Australian objects in use at the present day. Bone and ivory buckles seem to show that Homo Predmostensis and his wife wore clothes, a fact which may give great umbrage to those naïve adorationists of the antique whose poetic license has allowed them to dote upon ancient man as one who "basked most of the time in the sunshine, without much on." Bone needles and ivory bodkins, knives with a flint inserted in a mammoth-bone handle, tomahawks, polishers, spoons, many kinds of tools, weapons, ornaments and domestic implements: enough and more than enough to draw and reconstruct with considerable accuracy those people of twenty thousand years ago. They dressed in animal skins, which they knew how to tan; they tattooed and painted their bodies, as pestles and mortars and quantities of red, white and yellow earth testify; they honored their dead and buried them. And if Homo Predmostensis could do that twenty thousand years ago, the question of how long his ancestors had been in arriving at such a degree of skill and knowledge is an open one of somewhat vast possibilities.

These discoveries happen to be only the latest of many archaeologcal triumphs of the last half century. To this "pre-civilized" field of human endeavor, the long period of the artifact, has been given the misnomer of Prehistoric Archaeology. That bad bit of nomenclature will probably soon be discarded. Nothing is prehistoric that can tell its own history. Written language has nothing necessarily to do with it. Yet the word "prehistoric" for some reason has been attached to the long period of the history of mankind before the introduction of writing simply because of the mistaken supposition that writing is the foundation stone of history. It has been said by great authorities that Thucydides is the only historian in the world who has written with entire honesty and unimpeachable impartiality. Yet archaeology and much other recent historical research has shown that he did not possess all the facts, and that he misinterpreted some of the facts he did have. An archaeologist's interpretation of New York City two thousand years from now will be much more truthful and much more valuable than all the building contracts and newspaper files and other contemporaneous written comment, granted that such written material survive the lapse of time.

THE NEAR EAST

It is only a little over a century ago that Rich began to excavate in Mesopotamia. In 1812 Burckhardt discovered Petra. Real interest in the farther Near East was not really aroused, however, until Rawlinson discovered in 1835 and then copied the inscription on the face of the Rock of Behistun, the inscription from which the cuneiform system of writing was finally deciphered. Botta excavated Khorsabad in 1843–1846; Layard was working at Nineveh at the same time. Americans began to excavate Nippur in Babylonia in 1888, but it was not until as short a time ago as 1899 that work began in Mesopotamia on an extensive scale with the expedition of the Deutsche Orient Gesellschaft at Babylon. Since then wonders have never ceased.

J. de Morgan found the code stele of Hammurabi in 1902; in 1903 the Germans extended their work to Assur; in 1918 H. R. Hall found near Ur the oldest Sumerian temple; in 1923 Sir John Marshall began the excavations of Mohenjo-daro and Harappa in upper India, and found not only that these towns dated back as far as 3000 B. C., but also that in them were objects that proved commercial relations with the Sumerian towns in the lower valley of the Euphrates. In 1923 Woolley identified the oldest Sumerian temple as that of Aannipadda, king of the first dynasty of Ur. The identification was made by the discovery of the oldest piece of known Sumerian jewelry, a gold bead on which the name of the king was inscribed. About the same time, 1923–1926, MacKay at Kish found 200 pictographic tablets, a discovery which was more than matched by Chiera of the American School at Baghdad who found 1000 tablets in Assyrian in his "dig" in Iraq.

The work during the years 1928–1929 was most productive of results. The expedition under Chiera of the American School of Oriental Research at Jerusalem at Tarkalan; that of Waterman of the University of Michigan at Tel-Omar near

Ctesiphon; and that of Legrain of the University of Pennsylvania and the Louvre at Tel-O were the forerunners of the still more important excavations, still under way, by Woolley in charge of the expedition of the University of Pennsylvania and the British Museum, and by Henry Field and S. Langdon who conducted the work of the Field Museum in Chicago and Oxford University; both in the vicinity of Ur and of Kish.

During his seventh campaign in 1928–1929 at Ur, Woolley opened 454 graves among which were five royal burials. The chronology of early Mesopotamian cultures was more definitely fixed, developments in vaulted constructions were traced, and the ceremonies that accompanied burial rites were determined. A number of lyres were found with sounding boxes and decayed remains of gut strings and other parts so complete that the deduction was easily made that those ancient peoples had already reached an advanced stage in musical knowledge and technique.

One of the latest discoveries has a unique importance. In a tomb there came to light two objects never before paralleled in any find in Mesopotamia. One piece was a harp with twelve strings; the other was a chariot. We know from many sources the Greek harp or cithara of eight strings, but to find a harp of twelve strings which is over 5000 years old opens up some interesting questions on the duodecave versus the octave. When the harp was found the woodwork of the sounding-box was of course decayed, but the inlay with which it was decorated gives its exact shape. The box was adorned with mosaics of birds and animals in heraldic positions, and in front is a series of shell plaques which are beautifully engraved with mythological scenes as yet unexplained, but from which we may soon expect some interesting comparative information. The upright of the harp is bound with gold; the keys are of copper with gilt heads. The body of the chariot has three lion heads of gold on each side. The pole has a silver reinring, on top of which is one of the best pieces of realistic art thus far ever found. It is a figure in electrum of a donkey. Here we have the forerunner of the present radiator cap mascots on the fronts of our automobiles. Thus another of our vaunted modern inventions goes into the discard. They had them 5000 years ago.

A few weeks after the discovery of this tomb, another remarkable discovery was made. It was the grave of Queen Shub-ad. In all, about 150 objects were found with the bones of the queen and her attendants. Coils of gold ribbon made up part of the queen's head dress. It had also several bands of lapis and carnelian beads and a wreath of mulberry leaves of gold making part of a frontlet that went across her forehead. Her gold earrings and her gold hair ornament, shaped like a seven-fingered hand, each finger tipped with an eight pointed star flower, were also found. Amulets in the forms of fish, antelopes, pairs of golden rams, stags, bulls, lapis lazuli, and steatite, thirty or more carved objects of alabaster of which a lamp was one, two silver bowls fitted with "straws" of gold and lapis, a copper brazier on bull's feet, a gold strainer, and an ostrich egg of gold, make up part of the amazing find. The goldsmiths of 5000 years ago can no longer be discounted. They were supreme artists.

Historically speaking, Tutankhamen had nothing new to offer; artistically and romantically, he had a world to offer. While the marvelous treasures from the Pharaoh's tomb were being discovered and heralded abroad, Mesopotamia, out in the neighborhood or Abraham's Ur of the Chaldees, was disclosing towers of Babel, Sumerian tablets, pottery, and royal seals that were two or three thousand years older than the new finds in the Valley of the Kings. The results have been astounding. A comparison is now possible between objects of gold, copper, electrum, and lapis lazuli from Mesopotamia with the things which came from Tutankhamen's tomb, and from the shaft graves of Mycenae and Orchomenus in Greece. The government of Iraq has not questioned the fifty-fifty division of the finds, which assures London and Philadelphia of a division of their half. Daggers, axes, cups, bowls, bulls' and lions' heads of gold, fine as they are, must give way to objects of a more unique character, such as a gold monkey an inch high on a copper stickpin, an *etui*, or vanity-case of a court lady, a harp with shell inlay carved with mythological scenes, the bead-cloak and golden headdress of Queen Shub-ad, the inlay standard with six rows of pictured representations of the life of the times, which has gained the name "Bayeux Tapestry of Sumer," the gold cockle shells for holding face paint, etc.

Two finds of more than unusual importance have lately been made. In digging down through a level which by the pottery dated around 3400 B.C., the excavators reached what they thought was virgin soil. But this virgin soil looked suspiciously like a river deposit. When seven feet of this deposit had been dug through, below it were found pieces of pottery of earlier types. Further trial pits with like results seemed to warrant announcing that the seven foot layer of deposit had been laid down by a flood of much more than ordinary volume. The Mesopotamian story of a great Flood, from which the Biblical Flood seems to have derived, is backed by a very long tradition. It may still be a little early to go as far as the excavators have gone in stating their belief that they have found the actual basis of the Deluge; but they may be right.

The prettiest piece of excavation was that of a buried harp. One of the excavators came upon a petrified wooden rod which looked like part of the frame of something. Woolley suggested they pull it out very carefully and run plaster of Paris in the hole. After this was done with the several pieces, as they came to them, they dug with the utmost care from the side. When they got in far enough to strike their plaster of Paris rods, they saw that their plaster of Paris had framed a harp. Then after more of their skilful scaling away of the dirt, they were rewarded by finding ten thin whitish lines which were what was left of the vanishing gut of which the strings were made. The work was so carefully done that it was possible to make an excellent photograph which gives the thin outlines of the ten strings. It was a beautiful piece or archaeological work.

Kish was the first city to be founded after the Flood of the Bible. There the Field Museum—Oxford people have come upon some of the most wonderful things that archaeology has thus far found. Part of an inscribed monument takes Mesopotamian writing back beyound 3000 B.C. An earthenware plaque gives a fine relief of a Sumerian king, and an inlaid plaque shows the dress and appearance of the early citizens of Kish. A chariot, the four wheels of which have copper tires, and a copper reinring found with it that date 3500 B.C., has given us the oldest vehicle in the world. The temple built by Nebuchadnezzar, the king who saw the handwriting on the wall, as told in the Hebrew Scriptures, has also been excavated by this same Field Museum—Oxford expedition.

Mesopotamia is running Egypt a very close race for primacy in date of early civilization in the Near East.

Palestine

Palestine is part of the narrow strip of mountainous country that lies between the farthest east coast of the Mediterranean sea and the desert of Arabia. There have been settlers in Palestine for a long time. The tentative date assigned to early Stone Age man there was about 10,000 B.C., as proved by the tools and artifacts that have been found in Transjordania, on the maritime plain, and on the tablelands near Jerusalem. But with the discovery some years ago by the British of the "Galilee Skull," which belonged to a young man of about twenty-five, of the Neandertal type, surrounded by implements and artifacts of the Mousterian type, the antiquity of man in Palestine must go back many thousands of years earlier than 10,000 B.C. Many remains of the New Stone or Neolithic Age have been found, and enough other data are at hand to set an occupation of a Neolithic race in Palestine at about 3000 to 2500 B.C.

The end of the Neolithic period in Palestine, *i.e.*, about 2500 B.C., was roughly contemporaneous with the incoming of the first of four Semitic waves of invasion. The Amorites from the north were successful in occupying the country, although not in strength enough to keep out the second incursion, that of the Canaanites, who came in about 1800 B.C. Four hundred years later came a third drive of Semites known to history as Aramaeans, and about 1200 B.C. the fourth Semitic wave of invasion, namely, that of the Hebrews, came.

Palestine gets its name from the Philistines, a people who entered the country at about the same time the Hebrews did. Archaeology is just beginning to dig sites of these Philistines and it may not be many years before we shall know definitely whether they came from Asia Minor, or as the best belief now is, from eastern Crete, being those of the Cretans who ran away rather than submit to the Dorian invasion of Crete that overturned the Minoan government there, sometime during the period 1400–1250 B.C.

Jerusalem

Scientific excavation is just beginning in Jerusalem, and work there will be both slow and unsatisfactory due to the compactness of the modern city buildings. It seems to be settled now that Mt. Zion is the rocky spur between the Kidron and Tyropoeon valleys. The early Jebusite fortress was on its south end, the Temple mount was in the middle, and Ophel at the north. Crowfoot has lately discovered potsherds in a rock fissure which give dates from the Middle Bronze Age down to the time of the Hebrew monarchy, and at the same time proved that the pre-exilic and post-exilic levels were the same.

Beth-Shan

Commanding a strategic site where the angle of the plain of Esdraelon strikes the valley of the Jordan river is a large mound, called the "Mound of the Fortress," (tell-el-Hosn). It is just north of Mt. Gilboa and lies in the path of any army which would leave the road along the Mediterranean and cut across Samaria through Dothan to reach the Jordan valley rather than risk the narrow pass at the western foot of Megiddo. It was so strategic a point that it was the stronghold of successive inhabitants during a period of over 3,300 years, as excavations these past few years have shown. These discoveries were made by the Palestine Expedition of the Museum of the University of Pennsylvania under the directorship of Alan Rowe.

Hazor

Tell el-Kedah, a mound near the small Lake Huleh, about twenty miles north of the Sea of Galilee, occupies a site so strategic, commanding as it does two main roads, one from Damascus to Egypt, the other from Sidon to Beth-shan, that it is strange its exploration was delayed so long. The former Director of Antiquities in Palestine, John Garstang, discovered the site in 1926 and two years later began its excavation. The area of the top of the mound is some 3000 x 1200 feet, its four rounded corners being toward the cardinal points. The platform is in two sections, the larger about 100 feet high with an entrance at its north corner protected by megalithic revetments. The pottery fragments show that the inclosed camp was of Middle Bronze Age date. It was destroyed and abandoned—for a time—in the Late Bronze period. It was reoccupied during the Early Iron I and II periods. A good stratum of well-built stone and brick of the X century is clearly visible. The place was destroyed in 735 B.C., as also is clear, by Tiglath-pileser III of Assyria. The Tell el-Amarna letters and the story in Joshua connect Sidon with a place called Hazor; a XIII century papyrus associates Hazor with a navigable river; Solomon in the tenth century (II Kings XV, 29) repaired Hazor; Josephus says Hazor overlooked a lake. There is no longer any doubt that Tell el-Kedah is Hazor.

Kirjath-Sepher

In March of 1926 a joint expedition of the Xenia Theological Seminary under President Kyle and of the American School at Jerusalem under Albright, began the excavation of a site in Palestine known as Tell Beit Mirsim, a mound 13 miles southwest of Hebron. They cleared off one stratum after another. The top, or latest level, had been occupied for about 300 years until its destruction, probably in 588–586 B.C. by the Chaldaeans. A seal of Eliakim dating 597 B.C. was found in this top city layer. The next lower city was destroyed by Shishak, King of Egypt, in 923 B.C. (II Chron. XII, 4). The third level from the top had in it pottery of the XIV and XIII centuries B.C., a discovery which comes close to dating the arrival of the Philistines. Philistine pottery is first found in Egypt about 1170 B.C., and it must have begun to be imported into the Shephelah of Judah about 1150 B.C. The fall of the third city at Kirjath-sepher, a Canaanitish town, must therefore have been about 1225 B.C., which is the date that Canaan was invaded by the Israelities, and the men of Judah are they who took and burned the place, and built city C., the third level. The next two levels are Canaanitish. The lower one was occupied about 2000 B.C. but was soon destroyed by a fire. It was soon reoccupied and rebuilt. Vases of the XIII and Hyksos Dynasties (1800–1570 B.C.) belong to the fifth level, and scarabs and pottery prove that the fourth level was destroyed some time before the reign of Thothmes III (1501–1447 B.C.). Albright has goods grounds for claiming this newly excavated mound as the site of the Kirjath-sepher of the Bible.

Megiddo

The excavation of Megiddo, that site so famous in both ancient and modern annals, was launched in 1925 by the University of Chicago under the general direction of Breasted.

Fisher and Guy has excavated up to 1928 four higher levels which extended from the fourth to the tenth century B.C. In the fourth level—from the top—which is Solomonic in date, was found a great stable, which was given much prominence at once in the press as Solomon's stables. Each stable had 24 stalls, 12 on each side of a runway. Monolithic pillars supported the roofs of each stable, and the horses were tied to the pillars. A stone manger stood between each two pillars. Space for 200 horses has been uncovered. Critics of the Bible have hitherto smiled at the statements in I Kings IX, 19, and II Chronicles VIII, 6, which mention the building of towns for the maintenance of the horses and chariots of Solomon. Bliss has found stables of the same sort in the fifth level of Tell el-Hesy, also of the X century. We know that Megiddo was rebuilt by Solomon, and that Megiddo of almost all strategic places in Palestine would have been the one where an able king would have established a headquarters post of consequence.

Beth-Shemesh

To Haverford College belongs the credit for the excavation at a mound called Ain Shems, some 35 miles west of Jerusalem. The site is that of the Biblical Beth-shemesh. Three strata, those of the Late Bronze, Early Iron I (Philistine), and Early Iron II (Dual Monarchy) are especially well preserved and full of objects; in fact the finds from the Bronze Age necropolis constitute the most important series of early funerary remains found in the last twenty years. The place was occupied from the XVII to the XIII century by Canaanites; the Israelites destroyed it and occupied it until the X century, when it was again destroyed. It was resettled but not well rebuilt, and lasted precariously until it was burned by the Chaldaeans. The excavations this past year have been directed by Clarence Fisher, who was kind enough to give the writer the best part of a day in August, 1929, showing him the newest finds, among which was a most interesting necropolis cut back into a lower slope of the tell.

Mizpah

As one comes in by automobile from the north toward Jerusalem, seven miles out, one skirts a hill called Tell en-Nasbeh. It had been a good guess that so lofty a site would have been occupied from early times certainly as a watch station, and probably as a fortress. During the World War a German aviator had chanced to take a photograph of the hill. Dean Badé, Director of the Palestine Institute, saw the picture and was so struck by it that he secured the negative and had a clearer print made. Contours of walls and gates were then visible, contours which one does not see at all as he walks over the top of the tell. The area on top of the tell which is enclosed by a sixteen-foot thick wall is about eight acres. Almost at once the excavators came upon the platform of a tower citadel. Later, near the citadel, were found several circular silos or granaries. At the bottom of one was a stone which sealed an opening in the floor. The room below was a plastered cistern of the shape of a huge jug, and in it were found many pieces of Israelitish pottery of the Exilic period, but not a single sherd of an earlier period. The date at which this cistern was sealed was about 585 B.C. This at once made the excavators turn to the 40th and 41st chapters of Jeremiah, where is told the story of the treacherous murder of the governor of Judea, Gedaliah, whose administration under the Babylonians had been centred at Mizpah, by Ishmael and his friends, who had killed the governor and his companions and hidden their bodies in a nearby cistern. Nine cisterns were found by Badé, one of them large enough to have contained fifty or more men.

The great walls of Tell en-Nasbeh were built during the Middle Bronze Age (2000–1500 B.C.). The builders therefore were Canaanites. This town may well have been one of the fortified cities seen by the Israelitish spies which were reported (Deut. I, 28) as being "great and walled up to heaven."

And so Tell en-Nasbeh has given up its secrets and revealed itself as the Mizpah of the Bible.

Egypt

Modern archaeology in Egypt may be said to have begun during the expedition to Egypt of Napoleon, for during that time, in August, 1799, the Rosetta Stone was discovered. From 1851 to 1855 Mariette excavated the Serapeum at Memphis; in 1880, Flinders Petrie, and in 1881, Maspero, began work in Egypt; the first paintings on mummies were found in 1887 in the Fayum; work began in 1894 at Deir el-Bahari, on the temple of Queen Hatshepsut, whose sarcophagus was found in 1904 by the American T. M. Davis; in 1906 the Metropolitan Museum began work at Lisht; the Egyptian Expedition discovered in 1928 a cemetery of the Sacred Bulls near Luxor; in 1928 the Vienna Academy excavated *mastabas* near the pyramid of Cheops.

Discoveries of papyrus mss. began in 1846 with three lost orations of Hyperides; in 1891 a roll was found at El Hibeh containing the adventures of Wenamen; in 1897 the *Logia* of Jesus were found at Oxyrhynchus; in 1906 Grenfell and Hunt discovered a basket of broken rolls among which were parts of the *Paeans* of Pindar, of the *Hysipyle* of Euripides, and of a history of Greece; and in 1887 some clay tablets found at Tell el-Amarna turned out to be valuable historical archive material. The jewelry of the XI and XII dynasties found by de Morgan at Dahshur in 1894–1895 was the first of those finds; it was eclipsed by the discovery in 1914 of the treasure of Lahun, and that in turn by the discovery beginning in 1922, of the funeral equipment of Tutankhamen.

Nothing but praise can be given to the scientific care with which the tomb of Tutankhamen has been resurrected during these past years. Opposite the doorway of the inmost chamber of Tutankhamen's tomb was the so-called Canopic shrine. It had a gilded wooden canopy, six feet high and nearly five feet square, surmounted by two bands of erect solar cobras inlaid with gold and enamel. It stood on a wooden sledge, on the floor of which stood four nude statuettes of tutelary goddesses, one on each side of the shrine, facing inward and with arms outstretched in protective fashion. The goddesses were easily recognized as Isis, Nephthys, Neith, and Selket, which made it certain that they protected some inner shrine in which would be found the four "Canopic jars" containing the viscera of the dead Pharaoh.

It took both time and care to dismount the tutelary goddesses and dismantle the outside protective canopy of wood. Then came the revelation! In the centre of the big wooden sledge stood a smaller sledge, on top of which was something under a great linen pall which had been draped there 3282 years ago. The pall was lifted. Lo! a chest of translucent alabaster, nearly cubical in shape, with a dado of gold, its sides replete with hieroglyphics, filled in with black paint, at its corners in carven relief the same four tutelary goddesses, and with a heavy lid which was fastened down by four seals held by gold staples! The lid was raised. Four alabaster likenesses of Tutankhamen's head came to view. These heads were the tops of four receptacles. Each receptacle held a most beautiful inlaid gold coffin. These four coffins are exact replicas in miniature of the huge coffin of gold in which Tutankhamen's mummy was enclosed. They represent the highest attainment of the art of the Egyptian goldsmith and jeweller.

The sculptures are the finest things in that line that Egypt now boasts. The four little goddesses on the outside of the canopy are exquisite pieces of realism. The figures are all done in the stiff upright fashion of Egyptian sculpture, somewhat attenuated and crude when compared to Greek work, but the portraiture is superb. The four carved alabaster likenesses of Tutankhamen and the four similar faces in gold of the small mummy cases, all wear on the brow the Pharaonic insignia, the Nekhebet vulture and the Buto serpent, which were the emblems of the kingdoms of upper and lower Egypt.

Egyptian art is now in process of being overhauled from a quite different point of view than that of a unique gigantesqueness. We have been overwhelmed, nay, often silenced, by the heaven-pointing pyramids, the megalithic monolithic obelisk shafts, the hypostyle hugeness of columned Karnak, the subpetrine tortuosities of the tombs in the Valley of the Kings. We have forgotten for the moment that the immense remains in alabaster, granite, and basalt are architectural and sculptural culminations purposely meant to house or portray men who had become supermen through a system of deified immortalization. But there must have been—and there were—lowlier types of construction. The question has come now to the fore: did the lowlier ephemeral architecture, sculpture and art of Egypt have esthetic and artistic value?

Great columns at Luxor like an erect shock of huge, bound, papyrus-tufted stalks, petrified into an architectural *tour-de-force*, show a conventional treatment of a naturalistic model, the calm beauty of which equals their grim majesty. But finds in many recent tombs of painted columns give us the more slender, the less costly columns that once existed in wood or stucco. These columns suggest beautiful if bizarre bouquets on decorative columnar stems. We must certainly add to the different orders of architecture that of the papyriform.

There were in Egypt scores of statuary pieces in wood, ivory and metal for every one of stone or marble. In Greece there were certainly as many bronze statues as marble ones. But stone has lasted best: the rest have perished or have been taken for other uses. The stiffness formerly ascribed to Egyptian sculpture begins to unbend before the calm beauty of the kneeling wife of Jechi; the former claims of stolidity of Egyptian countenance can no longer be maintained in the face of the royal head in the Boston Museum, discovered at Gizeh by Reisner. The exquisite bust of Queen Nefertete, wife of Amenhotep IV, now in the Berlin Museum, (perhaps about to be traded back to Egypt) shows a profile that is nothing less than a consummate likeness of a most beauteous lady.

The fauna and flora of Egypt of the earliest to the latest times can now be traced on the walls of the *mastabas*, or tombs of the nobility. The earliest drawings or paintings are somewhat crude, but there is never any doubt as to the realistic qualitity of the work; no one every mistakes what animal or plant is portrayed. Perhaps the animals which became objects of worship are the best done; particularly the hawk and the cat. The Nile fish of 5000 years ago are as well depicted on tomb walls as a modern artist does them today on pottery or canvas.

Perhaps the most striking addition to our knowledge of ancient Egypt is that in the realm of industrial art. The walls of hundreds of tombs banded with inscribed figures are now available for study, due to the new developments in photography. We can now have before us in three or four photographs the thousands of engraved figures that throng a tomb, doing for the dead master in everlasting pantomine all the services which they did for him while he was alive. Here one sees every detail from the time grain was planted until it came from the oven in loaves and cakes; there the annual butchering of calves and sheep and other farmyard animals for the winter's larder. A representation of a carpenter shop shows several artisans at work with hammer or chisel or gauge upon a wooden sarcophagus; two artisans drilling a hole in a bedstead with bow and drill; one carpenter with a rip-saw ripping a plank, another with a crosscut saw cutting the top pieces for a table, and so on through a score or a hundred of the different things which the plantation carpenter had ever in hand. In the wonderful carvings which portray the presentation of booty to the gods it is now possible to recognize the provenience of many of the articles. With every such identification history gains an additional fact. In such a painting as that on the walls of the tomb of an Egyptian viceroy in Nubia in which one sees the princes and princesses of the Sudan bring to the King of Egypt their tribute, there is a pictorial wealth of contemporaneous history. The story of the trip to Punt and back as told on the engraved stone front of the temple of Queen Hatshepsut across the Nile from Luxor is one of the most gripping and realistic of all historical pictures.

This country now has in the Egyptian collection in the Metropolitan Museum as fine a collection as exists of the models of artisans and laborers. Hundreds of people every day hang in intent wonder over the miniature carpenters in their shop, over the weavers' room, over the Nile sail boat, or the fishermen in their canoes.

Pharaonic Egypt with its mystic lure of the stupendous is being hard run for interest and popularity by the myriad minions who lived and died for their godlike masters. Their lives and deeds are rising photographically from millenia of oblivion. The way they lived and the things they had and made are not sordid, as tradition has had it; they are artistic, and show the beginning of the great art periods of Egypt. Archaeology is making Egypt a veritable lodestar, a cynosure of all eyes.

HELLAS

From the time, a century and a quarter ago, that Lord Elgin began to collect Parthenon marbles on the Acropolis of Athens, Hellas has been the Eldorado of archaeology. There have been found single statues, arches, the Victory of Paeonius and the Hermes of Praxiteles at Olympia in

1875 and 1877, pedimental groups (*e.g.* those at the temple at Aegina in 1811), temple friezes, Mycenean towns and tombs, painted vases, archaic and Tanagra terra cottas, inscriptions, coins, bronzes, and marbles from the bed of the Mediterranean, and so on almost *ad infinitum*. The work of the French at Delos and Delphi, of the Germans at Olympia, of the British in Crete, at Mycenae and at Sparta, of the Greeks at scores of places, of the Americans in Crete, and at Eretria, Corinth, Argos, Eutresis, and Olynthus in Greece, have already needed scores of volumes to contain their discoveries. We shall confine ourselves to the description of one of the good bits of recent work. It is the excavation of ancient Olynthus done by Robinson of Johns Hopkins on behalf of that university and the Baltimore Museum of Art.

Olynthus had been a town from prehistoric times, but began first to be famous in 478 B.C. when it became the property of the Chalcidians. From then on until it was destroyed in 348 B.C. by King Philip of Macedon, the father of Alexander the Great, Olynthus was in the thick of changing Greek national and colonial politics. Its greatest value today is that its remains have given us what we had not yet had, namely, a typical Greek town of the period just prior to Alexander the Great.

About two hours by automobile from Saloniki, the ancient Thessalonica, is a long plateau large enough to have accomodated perhaps 60,000 people. The sea is four miles away. From the plateau one can see Mt. Athos, where the famed monasteries are. Off westward one has a view of snow-topped Mt. Olympus, the home of the gods, of Mt. Pelion and Mt. Ossa. Three of the famous orations of Demosthenes are called the Olynthiacs. Olynthus had become a town of such importance that Philip of Macedon felt he must secure it. His attack was so strongly combatted that when he did capture it, he razed the houses, walls, and fortresses, demolished the magnificent treasures of art, put practically all the inhabitants up for sale at auction without distinction of age, sex, or rank, and then gave to his army officers the lands of the city as their reward.

Professor Robinson found in the remains on the two hills near the Olynthian acropolis two rich suburbs of the ancient city. Inside the agora area were found deep cisterns lined with cement, and many pits for the storage of grain and other necessary supplies against need in time of siege. In a terra cotta factory not only were there discovered many graceful figurines all ready to be put on sale at a shop nearby, but also a number of molds in which the clay figurines were cast. One large mold was for a statuette of the goddess Cybele, which taken with other objects found in the agora area would seem to show that the cult of Cybele was an important one in ancient Olynthus. On the floors of a number of shops near the figurine factory were found hundreds of coins scattered about, showing the extreme haste of the shopkeepers in leaving as the hostile Macedonians charged into the market place.

The houses in the residential area are of immense importance to the historian and political economist. Each house had a cobble-stoned central court, as might have been expected. But each house also possessed a large principal room which is unique. The central portion of the floor was a rectangular depression paved with patterned mosaic, which was surrounded by a beveled border of cement. The entire floor also was built on a tilt which sloped gently to a drainhole at the lowest corner. The walls of all the houses were built of sun-dried brick, but the walls of these particular tilted-floor rooms were lined with a polished plaster either of a rich cream white or a deep "Pompeian" red. Many of the ceilings were painted in lemon-yellow.

In the courtyard of one house the marble head of a statue of Hera was discovered; in another, two house altars, a dining room table, many broken vases, and several beautifully sculptured antefixes, *i.e.*, roof-comb and eaves decorations. In another house was found part of a vase of red clay which had for decoration the head of a negro with the characteristic curly hair, large nose, and thick lips of the Ethopian of that day. The vase dates before 349 B.C. A terra cotta statuette of a Satyr, or Silenus, playing a double flute was also found near by. Among other objects of value are: a statuette in caricature of an old woman carrying a wine jug in her right hand; a sink for washing dishes; two Corinthian aryballi, or perfume vases, dating from about 500 B.C.; an ancient brazier; a set of round clay counters used in some game like parchesi; more than a hundred loom weights, which show that the Olynthian women wove and embroidered.

Many sling-stones of lead have been found scattered here and there near the walls and all over the city. From them it is possible to deduce certain interesting facts as to the weight of ancient artillery. The lead sling-shots, which had been cast with the letters "Chal," the first syllable of "Chalcidians," on them, are much smaller and lighter than those which have on them the stamped word "Phillippou," i.e., "of Philip." To the heavier projectile went the victory.

Thus there has come to light the most important ancient site in Macedonia, a city which played an important rôle in

Greek history for several centuries. It is of added importance, because no one had dug at this site before, and the United States therefore has the honor of doing another scientific excavation in and for Greece. Professor Robinson did an earlier excavation with the Near East Expedition of the University of Michigan some years ago, when he worked both at Sisma and Pisidian Antioch in Anatolia.

Rather than describe another excavation or discuss the intricacies of temple, theatre, or tomb discovery and reconstruction, let us take a comparative view of the artistic genius of Hellas and the rest of the civilized world as guaranteed to us by archaeological discovery.

If one is fortunate in having Apollo shoot one of his rays through the clouds of a Saronic evening, as one comes, having passed through the four miles of the Corinthian canal, across the bay past Aegina toward the Piraeus, that ancient seaport of a more ancient Athens, one will have a perfect approach to the violet-crowned mistress of pan-Ionic pride and panterrestrial glory. Suddenly from above Eleusis a ray of the descending sun may break its way through the clouds. That bright ray of light will play along the slopes of Parnes and Pentelicus and disclose long white chasms in the mountainside. Those are the gashes whence came the gleaming Pentelic marble than which no better ever offered itself for temple column or sculptor's statue. Then Apollo's ray, like a searchlight from heaven, will sweep across the darkening void until for a moment its lights upon the top of Athena's hill, just long enough for the eye to get its first glimpse of the Parthenon, that acknowledged zenith of architectural genius.

Some thousands of years B.C., the westward trek of the Indo-Europeans brought them away from wherever the cradle of our own ancestors was. After the Hellenic branches of that race negotiated the crossing of the Danube, they percolated in streams down into the lower Balkan peninsula. They knew good town sites when they saw them, and those sites which combined with a defensive value also nearness of drinking water and arable soil with a not too-nearness to a piratical seacoast, were quickly seized upon. No site in Hellas was better than a flat-topped hill in central Attica. This defensible *acropolis*, which means simply "the high city," was surrounded by a sizable and fertile plain, small to our present day ideas, but large for then: mountains in a rough semicircle, from eight to ten miles away, and the sea four miles off to the west. The coast afforded a fine harbor with a shelving shore for the early type of flat-bottomed boat that was pulled upon the shore at night, and also a rocky headland with three splendid narrow-throated harbors for the later day warship and deeper keeled merchantman. Athens found, as time went on, that its sea was full of fish, its mountains rich in marble, the tip of its Attica loded with veins of silver, its surrounding flat land marvelously suited to the fig, the olive, and the grape. Past either side of its citadel hill ran sparkling streams of clear cold water.

It seems strange to contemplate the fact that 2500 years ago the citizens of a small city-state, with a population that never exceeded 300,000, should have perfected a style of architecture both so exact and satisfying in proportion, in grandeur of line, and in simplicity of detail that no architect since then has done better than try to follow it. The Egyptians and the Minoans built with column and lintel long before the Greeks did, but their architectural styles are characterized as overpowering, grandiose, or stupendous. It was left for the genius, for it must have been that, of the Greeks to build with that marvelous combination of strength, dignity, proportion, and beauty which has never been excelled. There is not a city of any size in the civilized world of today that does not boast many buildings of the classic Greek type, but there is not one that claims precedence over its ancient prototype.

There are in Sicily and in Paestum in Italy, and in other parts of the Greek world, fine temples which are earlier in date, there were in Asia Minor temples that were more ornate, that were larger in size, than those in Athens. There stands the best preserved of all Greek temples of the Doric type, the Hephaestaeum, usually still called, but wrongly, the Theseum. Some of the columns still stand in Athens of the Olympieum, the largest and finest temple of the Corinthian order.

On the Acropolis, however, are the architectural gems of the world. With its porch of columnar maidens, the Caryatides, whose use became well-nigh universal, with its splendid eastern doorway, after which scores of doorways have been modeled, and with its exquisite and unique Ionic columns, the Erechtheum stands as the first temple in the world of the Ionic type. Almost its equal, however, is the tiny Ionic temple of Nike which poises with such lovely beauty on the bastion to one's right as one approaches the Propylaea, or front gate, of the Acropolis. The Propylaea would take rank as one of the finest of Doric structures, were it not that the Parthenon, even in its ruins, o'ertops the architectural world. That shrine to Athena, patron goddess of Athens, with its perfect proportions, columnar entasis, stylobate lift, columnar lilt, unequal intercolumniation, everything in fact enough out of level or plumb to correct the eye, offers to every architect problems in symmetry, in asymmetry, and in simplicity, that none has yet pretended to explain.

In medieval and modern times there have been and there are scores of sculptors of real merit, many of whom have done one or two pieces of exceptional beauty. The great sculptors of towering rank, however, are those who have done scores of things of varied types, and in whom there glows the fire of genius which is recognizable in what competent judgment calls masterpieces. In the modern world there has been one, Rodin; in the medieval world one, Michelangelo, although Bramante is a close possibility: two, or three at most! Not one in England, in Germany, in Spain, or in the United States. To go farther back, there was not even one in ancient Rome. In tiny Greece, within two hundred years, there were at least nine: Paeonius, Calamis, Phidias, Alcamenes, Scopas, Myron, Polyclitus, Lysippus, and Praxiteles, and a dozen more who were nearly up to their mark. That is an overpowering fact.

It is even more overwhelming when we realize that the reputations of those Greek sculptors, acknowledged from their own day to now by those entitled to judge, is based, not on their actual masterpieces, but on copies of their works at second, third, fourth, or even fifth hand. The world raves, and sculptors despair, over the Venus of Cyrene, the Apollo Belvidere, the Victory of Samothrace, the Aphrodite of Melos, the Tyrannicides, the Laocoön, the Marble Faun, and hundreds of other pieces of statuary in various museums. Why? It is because the world has never seen, and the sculptors have never been able to do, anything so good even as the *copies* of the Greek masterpieces. All these pieces of statuary just named are copies, or works by lesser artists.

To be sure, a few people have seen the shattered Victory of Paeonius; and how much superior she is to the Victory of Samothrace in the Louvre! It does not take long to convince oneself that the Elgin marbles from the Parthenon in the British Museum have something about them that is as undefinable as indescribable. It is known that they were done by the artists who worked with and under Phidias. It merits belief that the great master himself touched these minor pieces here and there, but he was superintending the whole plan, building and all, and of course gave more of his own time and skill to the larger figures at the middle of the tympana, or gables, and most of it to the completion of the gold and ivory statue of Athena Parthenos which was inside the Parthenon. She was the second finest statue that has ever been sculptured in this world. The finest was the great Statue of Zeus at Olympia, which Phidias also did for the temple there.

The best original piece of sculpture in the world to which the name of the sculptor can be assigned with certainty is the Hermes of Praxiteles at Olympia. Praxiteles was a sculptor inferior to Phidias, and the Hermes was not the best even of Praxiteles' work. But in the texture, the technique, the majesty, the beauty, the unattainable perfection of the Hermes alone, there is inherent enough to guarantee the supreme excellence of the Greek sculptors. Artists, sculptors, and archaeologists are now working at some scores of ancient Greek marbles and bronzes which have been found during the last decade, and it may well be that creditable attributions will be given to some of these pieces, such, for instance as the bronze charioteer of Delphi and two recently discovered Venuses.

Modern critics fall back upon medieval and modern painting as the field wherein the ancient Greeks were outclassed. But can it be justified? Not entirely; and every time a painted wall is found in the Greek or Roman world, which has one or more painted panels that were done on easel or table and then set into their place in the walls, the case of the modern critic becomes more untenable. Many of these panels are late copies of Hellenistic and Greek originals. No longer is it said that the Greek painters were ignorant of background, of chiaroscuro, of illuminism, of optical delusionism, of foreshortening, and the rest of the items of the painters' technique. There have been discovered of recent years in various excavations in Italy, Sicily, and Africa, hundreds of these panel and wall paintings in which, though in crude and hurried copies both of the originals and their traditions, nearly all the technique of today is present. Let anyone go to the Metropolitan Museam of Art and study the Boscoreale wall painting. That alone will convince the most uncharitable critic.

Besides, there are two yet stronger proofs. There are in all the larger museums, and especially in the Vatican, thousands of painted Greek vases. A study of the paintings of the best period both of the black and the red figured styles will lay, indeed has laid, to rest any further possible contention that the Greeks were not also supreme in the art of painting. There is now being published as a joint international enterprise under the direction of the Union Academique Internationale, of which the American Council of Learned Societies is our representative, a series of illustrated fascicles under the title Corpus Vasorum Antiquorum. Through these publications it is now becoming possible to get a conspectus of

Greek vase painting, and with each fascicle the stock of the ancient Greek painters rises. The discovery only a short time ago of a cemetery in upper Italy, from which already hundreds of perfectly preserved painted Greek vases of the best period have been recovered, will add to the already overwhelming mass of evidence.

The second proof is this. Greek sculptors, architects, and critics wrote about and compared many of the paintings of their contemporaries. They agreed that the painters were fully the equal of the other Greek masters in their own lines. These Greeks were critics of acumen, and the eternal verity of art exceeded in their mature judgment any possible emphasis of value from patriotic or personal reasons. We may be absolutely sure that the ancient Greek canvasses, board panels, wall panoramas, and *tempera* easel pieces, were masterpieces of the painters' imagination and execution.

Of the names of famous painters Athens had a large share. Three of the most noted, Xeuxis, Parrhasius, and Apelles, were not natives of Athens, but Athens was the lodestar to which they nearly all came to do some of their work. Polygnotus, who was the originator of realistic facial expression, painted at Athens. Agatharcus, who painted scenery for Aeschylus and who painted the interior of the house of Alcibiades, did his work at Athens. Apollodorus, the realist and the forerunner of the illusionists, was an Athenian. Pausias, who invented foreshortening, is also claimed by Athens. In the art of painting, therefore, Greece occupies the same lofty place as she does in the field of the other arts, and to Athens are to be credited more of the artists than to any other Greek city.

HESPERIA

Nothing is prehistoric that is true, except in the minds of those who still think of history as beginning with written or carved (*i.e.*, paleographic or epigraphic) statements in a readable form. Since the historian Green wrote his "History of the English People," it has become axiomatic that history is the sum total of all the obtainable facts about a people. Written facts have been in existence only a few thousand years; artifacts precede them by 50,000 years at least. The chief thing, however, that has caused artifactual or archaeological history to take precedence over written or literary history is the absolute truth of the former as contrasted with the unilateral bias or unadorned prejudice of the latter.

Rome's success caught the mind of posterity, and the general belief now is that the Romans were the great people who extended their civilization along with their power over the backward or barbarous peoples of Italy. There is no greater inversion of facts in all history. The truth has come almost entirely from archaeological, not documentary, evidence. Of the many scholars who are now working to set Italy and Rome in their proper perspective through the correct interpretation of archaeology, the British MacIver is one of the foremost.

Like all the other lands bordering the Mediterranean, Italy had been sparsely and precariously inhabited by the stationary cave man and the wandering savage. But they were too few to cause even a ripple on the spreading wave of Stone Age men. This neolithic people is known as the "Mediterranean Race." Archaeology has traced its paths by its discarded products as it spread in quaternary times from Africa round the Mediterranean shore line. Those who came into Italy are known as Ibero-Ligurians. They came across at Gibraltar, up through Spain, around by the present Riviera, and settled all northern and central Italy. That much is well established by archaeological proof. The two best known groups were the Picenes and Sabines.

By 2000 B.C. the peoples in central and western Europe, although much behind the east Mediterraneans, had arrived within the realm of civilization. Their communities show an advanced social organization; they farmed their own lands, they raised stock, they made pottery, they wove cloth. They were not advancing, however, so fast as the peoples in the east, because they had as yet no metals. Prospectors from the east as early as 2500 B.C. had found copper in Spain and several minerals in Hungary and Bohemia. Daggers of bronze were in use in Italy about the same time, but the metals to the Ibero-Ligurians were only matters of hearsay, and the daggers were only prized articles gained in commerce. About 2000 B.C. there appeared rather suddenly a migration of people from the north who built their houses on piles exactly as did the "Lake-dwellers" of Switzerland. These newcomers had both weapons and implements of bronze, as the excavation of their sites show. The types in the main are the same as those found on the Danube, where the most advanced European culture of 2000 B.C. was. These lake-dwellers seem to have been absorbed by the aborigines and the Terramare people. Soon came a second immigration from the north, semi-lake-dwellers, whose name, Terramare, means the peoples who built lake-pile-houses on dry land. That both these invaders from the north were different racially and radically from the aboriginal Ibero-Ligurians is certain. They cremated their dead, depositing the ashes in large jars, whereas the Ibero-Ligurians practised inhumation. For differentiating peoples, burial custom is perhaps the surest criterion known.

The Bronze Age culture in Italy depends in no way from the Mycenaean; it derives directly through these invaders from the northeast from Hungary and Bohemia, the immediate center of the radiating commercial routes along which went the copper and tin that made the Bronze Age of central and western Europe, together with the smaller amount of metal that went northward from Spain. By 1400 B.C. there was a fairly uniform level of Bronze Age culture over all Italy. By 1000 B.C., at which time we may date the beginning of the Iron Age in Italy, north and central Italy appears as one Bronze Age culture enjoyed unitedly by two races, but absolutely differentiated by their burial customs and separated sharply in locality. Between two lines, one drawn from Verona to the mouth of the Arno and thence along the coast to Rome, and one from Venice down the coast to Rimini and thence direct to Rome, are found the cremating peoples; east of the Rimini-Rome line are the Picenes, and below them the Sabines, the inhuming peoples. The latter, however, are still the same neolithic peoples they were. The Terramare, on the other hand, are gone, and others, very like them, are in their places.

The Italian school, following Pigorini, say the later Villanovans are the Terramare extended and developed; MacIver substitutes three later immigrating peoples, cousins perhaps to the Terramare, whom he calls geographically the Comacines, Villanovans, and Atestines. Both theories are attractive; both show direct connections of the cremating peoples with the invaders from the north east; and both show that the earlier aboriginal Picenes on the east coast were powerful enough to keep the invaders from entering their territory. It was the Villanovans who made the greatest contribution to Italian culture during the Early Iron Age. They were already skilful metal-workers when the Etruscans came, and to that fact the Etruscans owe their rapid advance. The Apennines mark the boundary between the northern and southern Villanovans. From the excavation of cemeteries near Bologna during the past seventy years, it has been possible to divide the northern Etruscan civilization into three periods:

First Benacci,	1050–950 B.C.
Second Benacci,	950–750 B.C.
Arnoaldi,	750–500 B.C.

The ossuaries known as the Villanovan urn, the bronze buckets (*situlae*) made from a folded over sheet of bronze and riveted so that the rivets themselves make decorative patterns, and the bronze razors, weapons, and armor are the objects by which the Villanovan culture is best dated and compared. The southern Villanovans were keeping nearly apace with their northern brethren, until the Etruscans, who came by sea from the east during the century 800–700 B.C., or perhaps earlier, gradually absorbed them and their culture. These newcomers soon spread over Latium and Campania, but not north of Apennines until about 500 B.C. Meanwhile, the northern Villanovans, Arnoaldi period, for two centuries developed their culture, which was untouched by Greek influence; the Etruscans, however, outstripped them, because they were trading with Greece and the east. The other two cremating peoples, the Atestines and the Comacines, did not play any great part in Italian progress.

The inhuming peoples on the east coast of Italy, the Picenes, Sabines, and Samnites, were martial peoples, as the objects of warfare buried with the dead show. Neither the Villanovans nor the Etruscans were able to penetrate into their territory. When the Picenes began to use things of Ionic character, they imported them, not directly from Greece, but *via* Apulia, which had direct commerical relations with the East.

Pre-Roman archaeology in Italy is the latest development there. Much work has been done on the remains of Roman antiquity because many of them, both in Italy and throughout the extent of the Roman empire, have never been entirely destroyed or covered. The excavation, however, of Cyrene, Lepcis Magna, and Sabratha in northern Africa, of Pompeii and Ostia in Italy, the recent draining of Lake Nemi to recover Caligula's pleasure barges, and the present work at Herculaneum to anticipate the pilgrims of the Bimillennium Vergilianum, are the great pieces of work being done outside of Rome. In the capital, the great task of uncovering the Fora, and the many accidental finds, of which the temples opposite the Argentina theatre are the most noteworthy, are creating much favorable comment.

We have not only much historical information about the first emperor, Augustus, but we have also his own autobiography which was placed, by his direction, in graven letters before his tomb. This tomb is still extant in Rome and is known as the *Augusteo.* The autobiographical inscription, however, known to science as the *Res Gestae Divi Augusti,* the Deeds of the Deified Augustus, disappeared. It seemed strange that no copy was extant, because the original at his tomb in Rome had been copied—and in the east, with an accompanying translation into Greek—on many temples throughout the Roman world dedicated to "Rome and Augustus." But a number of years ago almost the entire inscription was discovered at Angora in Asia Minor, the ancient Ancyra. Several fragments have been found in other places, and not long ago the pieces discovered at Antioch in Pisidia were excellently published by Professor Robinson of Johns Hopkins. The text is now almost complete. The list of the architectural activities of Augustus is astounding. He could justifiably boast that the brick city he had received he had left built of marble. He constructed colonnades, basilicas, theatres, he rebuilt or restored roads, he restored temples all over the empire, eighty-two in Rome alone. The temple of Jupiter Capitolinus came in for his particular attention. After he had restored this most sacred of all edifices, he presented the temple with sixteen thousand pounds of gold, and pearls and precious stones worth fifty million sesterces.

When the earliest Sabines and Latini settled on two of the later "seven" hills of Rome, there was a lake shut in by the Quirinal, the Palatine, and the Capitoline hills, which when drained off, left a valley where the markets and the public meetings and general business of the new community found their local habitations. This valley was soon known as the Forum. Later, when the Roman and Italian colonies modeled their municipal centers after the Forum in Rome, the latter got the name Forum Magnum or Forum Romanum, to distinguish it from all others. Julius Caesar found the Roman Forum so crowded that he decided to make an addition to it. He chose a spot near the north east corner below the Capitoline hill, and laid it out on the same orientation as the Great Forum, which he repaved and which he also reoriented to conform better with the lie of the land. Julius made a new temple the central spot around which his Forum was laid out. It was his desire at the time to authenticate his present claim to divine parentage. His family, the Julia, was popularly believed to be descended from Iulus, the son of Aeneas, and therefore the grandson of the goddess Venus. Caesar, as a young man, in the funeral speech he had made in the Forum over his aunt, had set up their family claim to divine extraction. His good fortune, his lucky star, had helped to win belief to his claim. He chose therefore as the divinity in whose honor a temple should be built in this new forum, Venus Genetrix, i.e., Venus the mother (of the Julian family).

Augustus in his turn found that the various businesses which were entitled to have space in the municipal center had so increased that a second additional forum was needed. He followed the example of his father (by adoption, by blood his great uncle) Julius Caesar, and chose an area abutting on the Forum and contiguous to the Forum Iulium, for his forum, to which the name Forum Augusti was given. Augustus was always very shrewd in his intimations. He chose as the divinity whose temple should be inclosed in his forum, Mars Ultor, i.e., Mars the Avenger. Of course, everyone understood that to mean "Mars the Avenger of the murder of my father Julius." It was serving notice on the families and friends of the conspirators whose daggers had killed the great Julius.

A third forum, added later by the emperor Vespasian, inclosed a temple to Peace, and a fourth, begun by his son Domitian and finished by Nerva, surrounded a temple to Minerva. These two fora lie south of the forum of Augustus, and although their clearance comes within the final plan of excavation, they lie outside the present field of archaeological operations. To the north of the forum of Augustus, however, stretched the largest of all the fora, that built by Trajan. Part of one of its courts has always been visible, as has the towering column, with its spiral decoration of reliefs, which once bore the statue of the Roman emperor, preserved through the Middle Ages and on to us in all likelihood by the fact that Trajan's statue was toppled off and that of St. Peter substituted for it. Two of the columns of the surrounding wall of the Domitian-Nerva forum have also been visible always in the little street called from them the *Colonnacce*, as have been three of the Corinthian-capitaled columns along the side of the temple of Mars Ultor. But war had overtoppled most of the monuments and neglect and accumulation of refuse had covered them. Then medieval houses and monasteries had been built over the forgotten glories of the Roman past. One could go down stairs into a restaurant and see the semicircular walls of one of the hemicycles of Trajan's forum; one might obtain permission to enter the gardens back of two or three houses and see the brick or stone walls of other parts of the fora of Trajan or Augustus. It was by dint of such visits that the topographers were able finally to draw fairly accurate maps of the ancient fora across the modern city map of streets and properties.

It has long been the dream of archaeologists to see the demolition of the medieval buildings and the recovery to unobstructed light of day the outlines of the ancient fora. The Italians have always seconded that dream and hoped to lay bare and connect up all the fora from the arch of Titus to the two churches that are north of the Trajan column and that flank the front of the altar of modern Italy, the great monument to Victor Emmanuel II, which faces across the Piazza Venezia up the stretch of the modern Corso, the ancient Broad Street (*via lata*). Something or other has deferred bringing to reality the all-forum dream until now. The Fascist government and Premier Mussolini have taken hold of the plan with enthusiasm and under the best scientific archaeological direction.

Just as it was necessary to move and re-house the population inhabiting the houses on the site taken for present excavation, so in ancient times was it necessary for Trajan to house the people dispossessed for the construction of his forum. One of the most interesting and important of the recent discoveries was that of a great bazaar, or arched market, inside the forum of Trajan. The architect of the Roman emperor was the famous Greek Apollodorus of Damascus. What more natural than for him to have transplanted to other surroundings, with the necessary differences in construction, one of the Oriental bazaars which he knew. The traveler today will at once notice the resemblance of the bazaar just discovered in Rome to that of the bazaars in Damascus or Baghdad. This arched hall had been in use for centuries, but it was inside the convent of S. S. Annunziata to which visitors were never admitted, and so it had not been seen for hundreds of years.

Above the wall of the northern hemicycle was a sadly disfigured building which dated from the early days of the Rinascimento. This construction is the Loggia of the Knights of Rhodes. It was built in 1470 by Cardinal Marco Barbo of Venice as the home of the Priory of that order in Rome. It is a gem of medieval art, with its four slender shafts and graceful traceries. It has been cleaned and restored to its original state, and no visitor to Rome can afford to miss seeing this beautiful piece of architecture.

From the area which has now been cleared there rises a great square structure of brick known as the Tower of Nero. Its present name is *Torre delle Milizie.* Nero is popularly supposed to have viewed the burning of Rome from the top of this tower. As it was built, however, about 1200 A.D., and as Nero committed suicide in 68 A.D., the popular belief may well be considered to have a somewhat frail foundation. But modern visitors to Rome tody will find that the high platform of this tower—now isolated—is the best place from which to see the new excavations of the fora of Augustus and Trajan.

The period of the Fora was a great age in Rome. The four particular friends of Augustus, Cornelius Balbus, Marcius Philippus, Statilius Taurus, and Vipsanius Agrippa, built under the inspiration of their emperor, nine porticoes, three theatres, one amphitheatre, fifteen temples, five public parks, and baths, aqueducts, fountains, altars, mausolea, a drainage system, a bridge across the Tiber, and so on almost *ad infinitum.* And yet Augustus with his own mausoleum and his Forum dedicated to Mars the Avenger, to mention but two of his hundreds of pieces of construction, overtopped them all. Not only was Augustus the builder of a great empire; he was also a builder of imperial Rome.

As Guido Calza has cleverly said, "the Rome of Augustus begins now to touch at many spots the Rome of Emmanuel III." On the last birthday of the Eternal City the announcement was made to the public that many new discoveries of the remains of ancient Rome were coming to light during the improvements which were being made to relieve traffic conditions in modern Rome. Where the Via Argentina meets the street known as the Corso Vittorio Emanuele, a corner plot was condemned in order to enlarge the space at the street intersection. The discoveries unexpectedly made were so important that a goodly share of the block was at once expropriated. The entire area has been converted into a public park which the King of Italy has inaugurated as such. Already the remains of four temples, one of them a round one, and of two porticoes, have been cleared, and these seem to be only an earnest of what is anticipated.

NORTHERN EUROPE AND GREAT BRITAIN

One may date the beginning of archaeology in northern Europe with Ramsauer's excavation of an Iron Age cemetery at Hallstatt in 1846. The discovery of "prehistoric" caves in southern France in 1853, and of lake pile-dwellings in Switzerland in 1854 gave fresh impetus to the work. In Germany the silver medals of a Roman officer were found at Xanten. The find at Hildesheim of a complete Roman dinner service of silver plate created a great stir. In 1880 the Gogstad Viking ship was found. From 1892 to 1903 the Germans carried out a valuable piece of archaeological topography by tracing the line of the Roman limes, or boundary wall, that the Roman armies had built between the headwaters of the Rhine and Danube to close the north frontier.

In England, Scotland, and Wales, much archaeological work is under way at the present time. In Scotland evidence has been found of Old Stone Age inhabitants. A Pict village has been excavated in the Orkney Islands. The sites of such well known Roman camps as those at Chester, Bath, York, and other places have been cleared, and many new sites have been discovered. The two Roman walls, one approximately from Glasgow to Edinburgh, the other from Tyne to Solway have been carefully traced; nearly all the Roman roads and dykes have been mapped. Many of the recent discoveries have come from photographs made by members of the Air Service.

The two Roman frontier walls mentioned above are in Scotland and in north England. The latter is known as the Roman Wall in England. It is usually spoken of as the Roman wall from Newcastle-on-Tyne to Carlisle-on-Solway. It really runs from Wallsend, north of the river Tyne, and several miles in from its mouth, over to Bowness on the north side of the Solway, across the river from modern Carlisle. It is something over seventy-three miles long, built of rubble and concrete core faced on both sides with stone, a little over eight feet thick, and was probably twelve to fifteen feet high.

Julius Caesar sailed from Gaul to Britain, more to explore the island to see whether the reports he had heard of its value were true enough to make it worth while to conquer. It was not, however, until the reign of the emperor Claudius, in 43 A.D., that Britain was invaded definitely as a matter of Roman conquest. The Romans made their base at the mouth of the Thames, from where three armies worked out for several years on as many different lines. General Vespasian, who later became emperor, commanded the army that went southwestward into Devonshire. A second worked north along an ancient road that later became famous as Watling Street. The third went northward to Lincoln.

There were three legions garrisoned in Britain at the fortresses of York (*Eboracum*), Chester (*castra*), and Caerleon-on-Usk (where excavations of importance are going on at the present time). Besides these three permanent camps, there were over a hundred smaller forts. Then there were numbers also of temporary earthworks, or camps (*castra*) built by the Roman armies for overnight protection.

The three legions which garrisoned Britain were: at York, the VI Victrix Pia Fidelis; at Chester, the XX Valeria Victrix; and at Caerleon-on-Usk, the II Augusta. The evidence is inscriptional. There are hundreds of grave stones in various museums and along the Wall itself, which give the names, both of the soldiers and their legions and smaller detachments. It is interesting to follow these inscriptions. We know, for example, from such grave stones, that at Wallsend (*Segedunum*) the garrison was the Fourth cohort of the Gallic Lingones, a name which still exists in France as Langres. The Roman name of Newcastle, which is five or six miles west of Wallsend, was *Pons Aelii*, which proves a bridge across the Tyne in Hadrian's time, because his family name was *Aelius*. The present Cathedral stands on part of the site of the Newcastle fort. There was a cavalry squadron at Halton Chesters (*Hunnum*), the *ala Sabiniana*, doubtless named after a favorite commander whose name was Sabinus. There was a bridge also at Corbridge (*Corstopitum*). Here one can recognize the ancient Forum, the granaries, and many other buildings. Dere Street entered Corstopitum. It was the main road for troops from the south. Chesters (*Cilurnum*) was the post of the Second *ala* of the Asturian cavalry. The late John Clayton excavated nearly the entire site. It has all its enclosed wall, the foundations of many of the barracks, the cohort chapel beneath which is a valted cellar where the quaestor, or army paymaster, kept his funds. The modern town boasts a most excellent museum, among the treasures of which is a bronze bushel measure (*modius*) inscribed with the name of the emperor Domitian.

THE AMERICAS

Archaeology in the Americas began with expeditions to Yucatan and Central America, and with investigations of the Mound Builders. No systematic work of consequence was done, however, until Bandelier began his work in the southwestern part of the United States in 1880. In 1887 the Hemenway Archaeological Expedition explored Los Muertos, and in 1891 the Peabody Museum began a ten-years exploration in Honduras. Germans published reports on the ruins at Tiahuanoco in 1892, Nordenskiold wrote up the Cliff Dwellers of the Mesa Verde in 1893, and in 1894 Thomas reported the important work of the Bureau of Ethnology on Mounds. The American Museum in 1895 began to work at Pueblo Bonito, and in the same year the "Dean" of American Archaeology, W. H. Holmes, published the results of his archaeological studies among the ancient cities of Mexico.

In 1897 investigation was begun of the earliest relations between Asia and America. The work was so important that in 1907 the Archaeological Institute of America established a School of American Archaeology in Santa Fe. The work of Hodge on the American Indians, and that of Fewkes at Mesa Verde beginning in 1908, together with new examinations of the content of the Mounds of the Mound Builders, began to lay the grounds for the later proofs that all the pre-European antiquities in North America were the remains of the civilizations of North American Indians whose ancestors at some undertermined date had entered America via Alaska.

Hewett, the Director of the School at Santa Fe, and Morley, a Fellow in that School, were meantime at work on the antiquities of the Maya. Based on the excavations at Quirigua, Hewett announced that Mayan culture went back at least as far as the time of Christ. Morley, working on the interpretation of the Mayan hieroglyphs, carried them that far back also, and since then has worked on their calendar and identified dates that go back several centuries B.C. The British Museum expedition in British Honduras, by their late study of ceremonial pottery and inscribed stele, incline to date Maya history there as from the first to the third centuries B.C. In 1916 the discovery was made of Uaxactum, the oldest known Maya city. In 1921 the temple of Quetzalcoatl at Teotihuacan near Mexico City was excavated; Cummings in 1922 excavated a very ancient pyramid at Cuicuilco; in 1926 the ruins of Coba were found by a British expedition; and at the same time Mason and Spinden were exploring ruins in eastern Yucatan. One of the finest pieces of work done was that in 1928 by the Carnegie Institution of Washington in the excavation and repair of the Temple of the Warriors at Chichen Itza. Earlier, in 1911, the Yale Expedition had discovered the ruins of Machu Picchu in Peru.

There is still an unsettled dispute over the date of the earliest archaeological remains in America. Thord-Gray divides the culture in the valley of Mexico thus:

1. Archaic or Sub-Pedregal Period
2. Mongoloid Period
3. Toltec Period
4. Chichimec Period
5. Aztec Period

The scientists whom he follows, working from geological volcanic evidence, would date the lava beds of the pedregal period as about 3000 or 4000 B.C. Sculptural remains of this period with Mongoloid features were first classified in Mexico as Toltec, but this racial group seems rather to be that to whom the ruins of Teotihuacan belong. To it belong many pyramids, those of the Sun, the Moon, and Quetzalcoatl, the latter being the largest and most important.

It was not until the westward drive of white civilization had populated the entire area of the United States that it was possible to make a scientific study of the objects left by the American aborigenes. The discovery of thousands of conical and animal shaped mounds coupled with the fact that living Indians had no satisfactory explanation for them, brought about a belief that the Mound Builders were not Indians, but a different aboriginal race. Researches in anthropology, ethnology, and archaeology, however, have now authenticated the growing theory that the Mound Builders were American Indians.

With the interest in the artifacts left by the aborigines came the question of the origin of these American Indians. One theory after another was examined and discarded until only one remained, namely, that they were Asiatic people who had migrated across the island bridge that extended from Asia to Alaska. This theory seemed tenable, because of the possibility of arrival, and because the Mongoloid features of Indians both living and dead added confirmatory reasons. If proof could be found of the migration southward from Alaska, the question could be settled. These proofs have been found, although they have been clearly established only within the last two decades. But now, both by the remains of things left by the slowly southward moving groups, and by objects found still in use in Alaska, Canada, and the northwestern states among their descendants, the connection has been made. It caused no undue surprise, therefore, when the habitations of the American Indians were discovered in such great numbers in the cliffs and on the mesas of the American southwestern states. Information began to increase with the work of the Government's Smithsonian Institution among the Pueblo Indians.

Of all the methods in finding the exact chronology of ancient peoples that of comparative ceramics is the most certain. Dated, written, or inscribed monuments are absolute, but in all countries the making of weapons, of pottery, and of certain household utensils, antedate the introduction of the written or inscribed word. The earliest date in America fixed with inscribed certainty is some years before Christ, inscribed upon a Mayan stele. It is certain that a civilization which produced monuments of an artistic character, such as those in Yucatan and Guatemala, presupposes many preceding centuries of the life of a people.

Not enough work has yet been done in Peru or in Central America on comparative ceramics to warrant any definite statements as to how many hundreds or thousands of years the civilizations in those countries antedated the Christian era. But our southwestern states are full of the dwellings and tombs of the aborigines. By the depth, thickness, and number of inhabited or burial strata it is now possible to make close approximations to the dates of basket and pottery making Indians. It is evident that the first incomers into the American southwest chose the likeliest spots for their habitations. We know how they tamed wild grasses and roots and slowly developed several cereals and tuberous edibles. In widely separated groups they began to live in comparative comfort. They soon discovered good clay for making bowls and pots for household use. They discovered turquoise from which such lovely ornaments could be made that the opportunity soon arose to extend it to a marketable commodity, especially with their more distant neighbors to the south. They found and then learned to flake and chip the flints and the obsidian of their hills and mountains into hide-scrapers, cutlery, and weapons.

Their small community houses were soon enlarged to what amounted to fortresses. Centuries, however, passed before these Indians of the plains and valleys found it first advisable and then necessary to seek homes in places that offered more protection. The majority of them betook themselves to the flat tops of their mesas. There they built their community houses into towns called *Pueblos*. They farmed the valleys below when they dared, but planted also on the tops of their mesas. Others betook themselves to natural shelters in the faces of sheer cliffs, where by enlarging rifts or caves and then building up the openings with strong outside house walls, they established themselves in Cliff Dwellings, especially in southwestern Colorado.

It seems possible to date these cliff dwellings and mesa pueblos as of about a thousand or fifteen hundred years ago. But by the science of ceramics we are now able to date with close approximation the life of a settled community by the stratification of its pottery. The scientific possibilities of fairly exact dating of ceramics, as already established in the Old World, have made it possible to assign both very early and late dates to pottery by its forms, its texture, and its technique of decoration. Wesley Bradfield, the expert ceramist of the School of American Research, found in the Mimbres valley in southwestern New Mexico series of pottery which gave proof that the different dateable series of Pueblo pottery carried the time of the making of the earliest pieces thus far known in America back to approximately four thousand years ago.

PART III

The Science of Archaeology

OBSERVATION

Observation is rather more a personal endowment than a scholastic acquisition. There are good archaeologists whose powers of observation are very limited; there are good observers who know little of archaeology. But no one can ever be a firstrate archaeologist unless he sharpens such powers as he possesses of careful observation, of memory, of deduction, of absolutely honest and conscientious endeavor to fulfil both the demands and the ideals of science.

Observation is only mastered in the field, but much may be learned before one engages in a "dig." An expert can set numerous problems from illustrative material, but the best practice will be had by visiting museums with the definite object of making notes upon, or drawing sketches of, specific things. A note-book, for example, made from the Greek vases in the Metropolitan Museum in New York, after proper preliminary direction, and a subsequent criticism, would give a person a fair knowledge of the types of vases, the color styles, and the decorative features; it would teach him much chronological data through the comparison of form drawing; and finally it would equip him with a considerable repertoire of the mythological representations, of the dress, armor, ornaments, coiffure, weapons, house utensils, tomb equipment, and so on. To spend a summer with the field students of the School of American Research at Santa Fe would be the nearest outdoor laboratory in which to learn how to observe in archaeology. To spend a week or so in helping to mend broken Zuni, Acoma, or, in general, Pueblo, pottery would teach as much preliminary ceramics as would be needed.

The greatest aid to observation is the camera. One must know how to handle all the various things that go to make up a complete photographic outfit. Field-glasses, compasses, angle protractors, measuring tapes, folding and sliding rules, square-traced drawing paper in blocks, squeeze paper and brushes, pencils, pens, inks, adhesive, labels, specimen bags, etc., are necessary equipment.

Observation in the field comprises the ability to detect artificial undulations in a natural lie of land. The date of standing ruins can be set only after considerable study of building materials, but mounds, slag-heaps, rubbish dumps, even buried town sites often yield themselves to keen and thoughtful observation. An incised gable on the face of a rock has given a careful observer the clue to a tomb. Broken pieces of pottery, one or two shallow pits, pebbles or soil belonging to a deeper stratum, even different colors in vegetation, have often led to notable discoveries. When one is in the field, keeping an eye out for those who offer antiquities for sale may easily lead to the cache, tomb, catacomb, or locality whence the objects came.

An important part of archaeological observation is a knowledge of how to make plans and surveys. Nothing should be left to memory, but everything when found should be plotted in one way or another. Artifacts of hard materials must be numbered so that their exact provenience can not be misunderstood. Perishable material should be photographed, and all possible data taken at once. Inscriptions of every kind must be copied if possible; if that is not practicable because of shadow or darkness, either a wet or a dry squeeze or rubbed impression must be made. Sculpture in low relief can also best be copied with a dry impression, or squeeze. Copying can be made better from stone after it has been wetted. Tin foil and plaster casts will be often found useful, especially for small objects. Rubbings, just such as our children do with paper and pencil, will give impressions of coins good enough for pasting in one's notebook, and it must be borne in mind that the necessary notes must be written up at once above or below them.

Observation will help in the matter of preserving and packing the objects found. Instructions from the director, or some one else who knows, is, however, the first desideratum; practice will then make one more and more perfect. Many small objects will need to be strengthened by paraffin or celluloid solution. Chlorine must often be removed from copper objects by a bath in ammonia. Rolls of papyrus must be packed in tissue and cotton, and never more than one roll put in a cylinder. Tablets of clay, after they are dried or baked, can be cleaned with a brush.

Finally the marking of objects, with duplicate marking on the box or container in which they are placed for transport or for safe keeping, and a carefully checked inventory, is an absolutely necessary part of the work belonging to that side of field archaeology which has been called "observation."

TECHNIQUE

Anthropology and Archaeology went to work scientifically on antiquity at about the same time, Anthropology taking ancient man himself for its special field, and Archaeology taking man's handiwork of every sort as its domain. Archaeology will dig and discover caves, shelters, town sites of various kinds; Anthropology then takes the skulls and bones and other body remains and by careful comparative measurements, comes very close to telling who the inhabitants were and whence they came. Archaeology then takes up its task again, finds and examines paintings on the cave walls, discovers stone artifacts which by rubbing or chipping or flaking had been made by ancient man or woman into utensils, weapons, grain grinders, or ornaments. It finds, tabulates, and compares every article which the ancient man made or used, with similar articles found at other sites. Geological and anthropological data are then brought into service and, between them, the facts about when the people lived, what they did, what they looked like, even how much they knew, all range themselves as scientific facts bearing upon a time thousands of years before the peoples who made and used them could read or write, and thousands of years before history is willing to recognize them as alive at all.

Of course, not all that archaeological technique brings out is unique. We have long since become accustomed to expect, with some guidance, a traceable line in art type, architectural design, decorative motif, back from modern through medieval to ancient times. Therefore having seen such painted backgrounds of landscape and many storied buildings as the Boscoreale room now in the Metropolitan Museum, or the ropes and derrick sculptured on the marble tomb of an architect of old Rome, or the walls of cities and temples on coins, gems, and stucco of Greece or Crete, there need be no surprise, but rather satisfaction, in finding on a sculptured slab numerous details of the building of the Ziggurat of Ur, a terraced tower like the Tower of Babel. But quite apart from its historical significance, giving as it does the sculptured name and several likenesses of Ur-Engur, the foreigner who founded the third dynasty at Ur, and apart from the great interest it will cause in adding to our knowledge of the life of the times, there are three points worthy of special note. The extraordinary lucidity and sharpness of the carving is quite unexpected from the side of art, the unique appearance of an angel pouring water from a vase, presumably referring to the value of the canalization of the valley, is equally startling from the point of view of symbolism, and the verification of the supposed technical skill of builders by means of the tools depicted is most gratifying. Some of the unrecognized tools will probably turn out to be surveyors' instruments.

The recognition for the first time of the moon god, the lively representation of workmen carrying mortar up ladders, the laying bare of a new and earlier stratum of a former city, the finds of past years, all valuable, all thrilling, are very important. But, oddly as it might seem, they really pale into insignificance before *one* stone slab, five feet by twelve or more, rubbed and defaced in spots though it is. That is because the *stela,* or slab, bears in epitome the unquestionable proof of a civilization both better and older than any other of ancient times thus far found.

A question often asked of archaeologists is this: why is it that ancient cities are found in layers or strata built one on top of another, and why were so many things of value left in the ruins? What was the building technique of the ancients? In general, some of the large public buildings have been saved from ancient times because they were built in the centers of open spaces. But the general run of private dwellings were built of stone or brick or concrete only for the first story; the second story and upwards were of wood either entirely or in good part. The streets were narrow; there was practically no protection from fire. In addition to the debris left from a fire, conquering enemies burnt or purposely destroyed as much of a captured city as they could. Besides that, earthquakes, storms, and volcanic eruptions have played no small part in overthrowing and destroying ancient habitations.

Those of the population who survived, or less often, new settlers, came sooner or later to the ruined site and rebuilt the place. Nowadays we should expect wreckers to clear away the ruins, and builders to begin their work at the former level. In ancient times, however, the custom was to use what of the standing walls were still fit; but as for the rest, everything was knocked in and leveled over, and the new town begun on top of the old, several feet or more above the old level. Again, not so much of the intrinsically valuable things that have been found in excavations have come from the ruins of the cities, but rather from tombs or hiding places where they had been put secretly for religious reasons or for concealment until the owner returned.

Several examples may help to make this point clearer. Troy on the Dardanelles with its nine cities on top of one another did not yield any great amount of things of precious sort. The situation of the place, controlling, as it did, the entrance from the Mediterranean into the Black Sea, was such as to create jealousy. It was captured over and over again, and each time the things of value were either destroyed in the fire or taken away by the captors. The town of Pompeii was destroyed by an eruption from Vesuvius in 79 A.D.

The hot ashes fell on the town to a depth about equal to the height of the first stone story of the houses. The upper wooden stories were burnt. Nearly all the inhabitants excaped during the day. They had time to carry or cart away their most valuable possessions. After a few months, when the ashes had cooled down, people came back, dug down through the rain-hardened ashes, and got out as much more of their things as they could.

But of course the heavier objects, such as marble tables, kitchen furniture, windows, lead waterpipe, pieces of statuary, and especially thousands of square yards of beautifully painted house walls, were left. There they are yet, sad reminders of a happy population made suddenly homeless. But their interpretation makes the ancient dead live again in their forgotten glory.

Technique should be considered from two points of view. Whether of building, of fashioning vases, or creating sculpture, of covering walls with paintings, of handling the great masses of stone that went into the pyramids, of getting obelisks or statuary marble from the quarry, of cutting intaglios, cameos, cylinder seals, or inscriptions, of inlaying dagger handles with gold or enamel, of building aqueducts or making lead water pipe, of constructing a ziggurat, of canalizing vast lowland areas, of making inimitable glass and glass paste, of digging a catacomb: all these discovered proofs of the splendid artistic and constructional technique of the ancients rank in importance as one branch of the subject here under consideration.

But the knowledge of much of that ancient technique would not yet be known, were it not for the highly developed technique of modern scientific excavation, which, after discovery of objects of antiquity, has preserved, restored and interpreted them. To attempt to describe in detail the various processes which the trained archaeologist uses in his work in the field, in the laboratory, and in the museum, would be a tedious, nay, a profitless and a thankless task. A few general observations, however, may be tolerated.

Up to perhaps fifteen years ago a site chosen for an exploration was perforated with trial pits and tunnels, and here and there trial trenches were dug through it. The reason was one of expense. Means were not available to do what the archaeologists knew they should do. Immediate results were demanded by those persons or societies or governments who financed the investigations. Now that funds are forthcoming and that the demands of science have overwhelmed the cry for results, the technique of excavation has come into its own. A site is now laid bare, an entire level or stratum at a time. A moment's reflection will show the advantage of such a method.

It is axiomatic that nothing found that is medieval or ancient can be destroyed in order to get at what is beneath it. Superincumbent remains must be removed in their entirety, or be shored up in some way, before excavation beneath them can continue. Considerable engineering ingenuity is often demanded.

There is a particular technique in the method of damping and unrolling of papyrus manuscripts, in the cleaning of walls covered with painted designs, in the mending of broken vases, and particularly in the handling of fragile or decomposing pieces of glass and metal. A mention of the meticulous care of Langdon and Henry Field to keep the wheels of the oldest vehicle in the world from crumbling to pieces, and of Howard Carter in connection with many of the small objects found in the tomb of Tutankhamen will suffice to make that point clear.

The technique of Lillian Wilson in comparative observation of thousands of ancient statues has enabled her to state with definiteness the technique of the living Roman in wearing and his sculptors in portraying the Roman toga. It has taken much time to analyse the colors used by the ancient Egyptians. We knew that the scribe ground his own colors and applied them with brushes made of reeds. But after it was discovered that his white came from lime, his blue from lapis powder, his green from sulphate of copper, and his red and yellow from mineral earths, his technique could be better understood.

EXPOSITION

Archaeology has three obligations that come under the heading of exposition. The first is the scientific obligation of exposing to photography, measurement, and field notes the sites, monuments, and objects with which any given excavation deals. The second is the obligation to shore up, to strengthen, to reconstruct—in an unmistakably obvious material or color—when necessary, and to use covering or preservative material, those constructions which must remain *in situ*. The third is the obligation to remove, first to safe local quarters, and secondly to the proper museums, all the portable objects, especially those of a valuable or unique character. With that goes the obligation to label the objects in a brief and expository way.

Museum exposition has grown to be a profession in itself. All the civilized nations have their great government, state, and city museums. Most of the universities have established museums, and many schools are beginning to found them. Many private persons have made collections of objects belonging to the domain of archaeology and art. Most of them are fairly generous in allowing their collections to be studied by accredited scholars, and many open their houses or museums at certain times to the general public. The feeling is growing, however, that such objects are particularly in constant danger of destruction by fire, and that feeling is quite apart from the growing opinion that objects which are of supreme value to the cultural growth of a community or state may not rightly be thus isolated. A realization of this growing sentiment seems to be borne out by the increasing transference as loans and by the depositions by testamentary gift to various museums. The number of school children and visitors who frequent the museums of the world has increased several hundred fold in the last decade, which in itself is an encouraging and commendatory sign of a growing interest in esthetic values. Without appreciation of the finer things of life, no nation has ever reached, and no nation will ever reach, the highest level of human attainment.

The governmental and state museums should continue to acquire the outstanding objects of archaeological and artistic value. University, college, and school museums should continue or begin to acquire objects which are material for scholastic research and for illustration to students and pupils of the literature, life, and times of other cultured peoples.

PUBLICATION

That part of the Rinascimento—for the Italian word should take priority over the French word Renaissance—which had to do with literature, depended in great part from manuscripts of Greek and Latin authors. Many of those in Greek were brought by scholars from Constantinople a few years before its capture by the Turks in 1453. Search in Italy, particularly in the monasteries, brought forth many in Latin, all of which were written on parchment, none on papyrus. Of late, however, the work of archaeologists in Egypt has been rewarded in many ways, and in none more than in the occasional and thrilling discovery of ancient papyrus manuscripts. The publication, still in progress in England, of volume after volume of the Oxyrhyncus papyri, and the work of Italian and German palaeographers speak for themselves. In the past few years a considerable amount of papyri from Egypt has come to America. The University of Chicago, Columbia, Cornell, Harvard, University of Michigan, New York University, and Princeton all have rather notable collections of papyrus manuscripts, many of which are now being prepared for publication.

Although thus far the single additions to ancient literature from papyri have been relatively unimportant, in gross they have added much to our knowledge of Egypt in the centuries immediately after Christ, particularly in the field of economics. But occasionally a papyrus also becomes an important historical document. A Greek papyrus in the British Museum has just been translated which puts an entirely new light on the Roman emperor Claudius, who has been credited generally, probably because of the *Apocolocyntosis* by Seneca, as the chief "pumpkin-head" among the occupants of the Roman throne. But in the light of this letter our opinion of Claudius will need to be revised. On the verso of a papyrus roll, which was a tax-register, is written in Greek an edict of the Prefect of Egypt with an official letter of Claudius to the citizens of Alexandria. The edict dates November 10, 41 A.D. The emperor's letter is his answer, sent through official channels, to a request made by an Alexandrian embassy. The first part of the letter is given to deprecating the semi-divine honors which had been voted him, and he says expressly he desires no temples or priests for himself. The embassy had asked for a Senate for the Greek residents in Alexandria and it is clear that they wanted a privileged position in the city such as the Jews had. There must have been some sharp dissensions between the two parties. The letter is quite too long to quote entire. After Claudius replies about the Senate matter by saying he has appointed an officer to report back on the proposition, he comes to the nubbin of the case: "With regard to the responsibility for the riot against the Jews, I refuse to give immediate judgment, but I reserve implacable wrath against those who recommence it, etc. I command that the Alexandrians show themselves forbearing and kindly towards the Jews, and offer no outrage to them in the exercise of their traditional worship of God, and I expressly bid the Jews not to busy themselves about anything beyond what they have held hitherto, etc. If, desisting on both sides from these proceedings, you are both willing to live with mutual forbearance and friendliness, then I on my side will continue to display the time-honored solicitude for the interests of the city which is the tradition of my house."

There speaks Claudius himself. Like Trajan, the emperor shows his personal interest in his subjects. In the light of this one letter alone Claudius must be reread by historians.

The above is an expository instance of the value of publication. There is, in point of fact, no other way that archaeological material can be guaranteed and made both a faithful and lasting possession. No one can see all the sites of excavations, and no one can visit all the museums and collections. No scholar or excavator can hope to interpret correctly all he finds or sees. The opportunity for criticism, for comparative references, for corrective interpretation, for safety against charlatanism, lies only in publication. There is also an added obligation here. Excavation, because of the attendant thrill of excitement, tends to run ahead of publication. Cases might be cited of fine excavations the value of which has been partially, in some few instances wholly lost, because of the postponement of publication.

There are scientific publications in all the countries which have interested themselves in archaeological research. All of them, however, are pressed for space to keep abreast of the field and museum work. The only general archaeological scientific magazine in the United States is the *American Journal of Archaeology*, the quarterly publication of the Archaeological Institute of America. Magazines of a popular and illustrated sort have been established in many countries. Popular interest would seem to demand an increase in this field, but only in case such magazines contain material that is not sensationally exhilarating. Discoveries like those of the tomb of Tutankhamen, or of the palace of the Warriors at Chichen Itza, or of the oldest chariot, of the golden head-dress of Queen Shub-ad, or of the riverine deposit of the Biblical Flood in Mesopotamia, or of a new cliff dwelling in a Colorado canyon, are sensational, but when written up sensationally, the amount of enthusiastic overstatement or calculated misstatement has often been on the verge of horrendous.

Each of the foreign archaeological schools in Athens and Rome publishes illustrated journals that carry both scientific articles of an original research character and also news and notes on the finds made during the intervals of publications. The American School of Classical Studies at Athens, and the School of Classical Studies, now one of the component parts of the American Academy at Rome, both publish regular and occasional longer studies, but their more important articles of immediate value appear in the *American Journal of Archaeology.*

The Greek archaeologists in general have been engaged on work already long in progress. Work on the Odeum of Pericles has gone slowly because the ancient building is very deeply buried. Mr. Sotirion at Nea Auchiolos has cleared the atrium of one of the oldest Christian basilicas in Greece, dating from the fifth century A.D. He found a basin and a font for holy water, and flanking the basilica also a tower, with a sacristy and ossuary. Enough objects were recovered to form an entire and complete museum for the Early Christian period. In Crete, Mr. Marinatos has found along the shore near Candia that the rocky coast had been indented, by cutting, into forms that seem to have been used for water-shipsheds. The funerary objects which had been deposited with the dead included beads of carnelian, amethyst and other stones, three beautiful carved gems, remains of ivory combs, knives, daggers, spear heads, tweezers, a saw, mirrors, and arrowheads of bronze.

In Rome the tomb of the Scipios has been given the restoration it has so long needed. The theatre of Marcellus has been freed considerably from encroaching buildings. Two temples of republican date, eastward from the porticoes of Pompey, have been uncovered further by the excavations below the Quirinal hill. Work on the Janiculum Hill on the newly acquired land of the American Academy in Rome resulted in showing that two ancient aqueducts, and not one, passed through the property now owned by the Academy. The aqueduct already recognized was the Aqua Traiana, but this new one, being of Augustan technique, is probably the Aqua Alsietina, or Augusta, because an aqueduct of that name supplied the Naumachia, or naval sham-fight basin, of Augustus, with water. Everyone of these finds by being published has given new material which corrects, amplifies or supports passages in classical literature which were not entirely clear.

INTERNATIONAL OBLIGATIONS

Archaeology is a science. Science is not a local or a national, but a world wide, international possession. It has contributed to the information, to the knowledge, and to the enjoyment of people. Certainly any science that does that is international in its scope because it is as wide as the world in its interests. Ancient history and art have laid a foundation upon which one part of our modern civilization is based. No individual would wish to deprive others of the interpretation of good things in the past; there is likewise no country that does not wish its citizens to share in all the best there is.

The Americas came later into the field of scientific archaeology than certain of the European nations. But the Americas have already become rivals of those overseas nations. There is a great archaeological field here. We also have national pride in finding what we have, and in housing and displaying it in the best way. We go perhaps further than they in admitting an international duty in making available for other peoples what is found here.

Too many things that transport people and that transfer words or pictures now bind the nations of the world together to make it possible to ignore the opportunities to create as good a mutual understanding as possible. Languages are different, and it will be some time before everybody in the world can speak, or even read, any one language; and of course until that is more or less true certain ideas can never get to everybody.

Now oddly enough perhaps, art and archaeology have the same language all over the world. Archaeological objects—no matter of what sort—of peoples before us tell their own stories of the lives of these peoples. Art in its every form appeals in almost exactly the same way to all peoples. Why therefore not start internationalism on something that has the greatest chance of success, and leave the hardest to follow, rather than to try to push it into the lead?

It is generally acknowledged that the finest statue in the world is the Hermes of Praxiteles, a marble statue that stands in the museum at Olympia in Greece, where the Olympic games were initiated and then held every fourth year for 1000 years. Not long ago out of pure international good will the Greek Government was willing to let this statue come to this country, among others, for exhibition. But a number of our societies and museums protested so strongly against it that it was not done. Now why did we do so? Would it not have increased international friendship to have urged that it did come? No; because the chances of an irreparable damage were too great, and the international importance of that magnificent piece of work was too great to run any risk. Marble is brittle. That statue was made nearly 2500 years ago. Ship and train and truck accidents have been known to happen in the best regulated and the most friendly attempts to promote international good will in such ways. But, if there were a dozen statues like the Hermes, then no greater international good could be done than to allow other nations to buy one, to get one in exchange, or to have one on loan.

Archaeology was international from its beginning. It may help if we look at a case that shows one type of advantage gained from international archaeological study. In the non-Greek Near East the peoples began, let us say 3000 years B.C. to mold cups and bowls from clay for home use. They were rudely made by hand and for a long time were not even made hard by firing. Slowly they learned how to harden them by baking; then they began to make them in different shapes for various uses. Later they made some vessels much thinner and more carefully than others, and began to turn them on a potter's wheel instead of fashioning them by hand.

Then one day somebody put on a few marks with ochre or some other mineral or vegetable color stuff he had found. This first simple mark-painting developed slowly into painting in bands, then designs in bands, then spirals, and then in geometric, animal and plant figures. To arrive at this point it would take about five hundred years, as we may discover by comparisons of different sorts. Especially in Egypt it can be told because a real dating method is found in the hieroglyphic writing.

Now cups and bowls of almost exactly the same sort, shape, and designs were made in Greece and here in our own Southwestern States. There is so little difference that if samples of the three series were put side by side it would be almost impossible to tell which was which. Examined in that way, the three series would seem to be of the same date.

Without international opportunities for comparison, if we could date one series as running from 3000–2500 B.C., we should want to date the others just as early. But the Greek series dates about 2000 years later, and the American series about 1000 years later still. This is proved by other archaeological evidence, and the whole thing holds together scientifically because science is international. For dating things in the east Mediterranean, Egypt is most valuable on account of its fixed dates. Science holds a chronological yardstick up against the layers of Egyptian and Mesopotamian civilization and gets its dates by cross measurement. Over here the dates given by the Maya writing is to be the chronological yardstick for the cross measurements. It will be the exchange of scientific data that will set all the civilizations of the past in their proper places and correct perspectives.

Great Britain, France, and Germany have long maintained archaeological schools in Rome and Athens. These schools are conducted under the auspices of national archaeological and classical bodies, but their expenses are carried by the respective governments. The United States came later into the foreign field than did the countries just named, and when it did establish schools in Athens and Rome, it was at private not governmental initiative and expense. Greece and Italy have been most hospitable to the scholars of other nations and have granted to the foreign schools sites for excavation. It is due to that unselfish open-mindedness that the science of archaeology rose so rapidly to the highest scholastic criteria of standing. To the opportunities thus afforded are due the wonderful discoveries that have restored with absolute security the structure and bases of ancient classic civilization, the certainty that there was a Troy near the Dardanelles and a

Mycenaean civilization in Greece; that there existed a Helladic culture in the Aegean Islands, a great Hittite empire in Asia Minor, a line of opulent and thriving cities along the north coast of Africa, and most startling of all, a Minoan civilization in the island of Crete that had as high a culture as Egypt and the dates of which went back almost as far.

Discovery and a reasonably immediate publication of the discoveries in Greece have outrun the production of both in Italy during the past twenty years. The reason for this is that Italy, after the successful termination of its war with Turkey some two decades ago, did not continue excavation privileges in Italian territory to any but Italians. That is no longer true. Italy is now open to excavation by other nations under newly made and satisfactory arrangements, due to the efforts of the International Mediterranean Research Association of Rome under the presidency of Count David A. Costantini. Classical archaeology is an international science, and the possibility of investigation should be made as free, and the prosecution of it as rapid, as properly controlled supervision will allow. It is to be hoped that the various governments will continue to recognize the immense value of international assistance, and will assign sites to the authorities of the officially recognized archaeological foreign schools, retaining whatever priorities are equitable. It is to be hoped also that all countries will sell or exchange, with museum guarantee of authenticity, duplicate objects, after their own museum requirements are met. Such procedure would help international amity as well as science, it would result in more rather than less visits to the museums of the countries of original provenience of archaeological objects, and best of all would result in putting a fairly effective quietus on the selling of faked antiquities. A further result would be the establishment of a properly authorized and recognized international clearing house for at least the mutual exchange of duplicate antiquities, such a clearing house, with headquarters probably in New York, as the Archaeological Institute of America has already suggested itself as being qualified to be.

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